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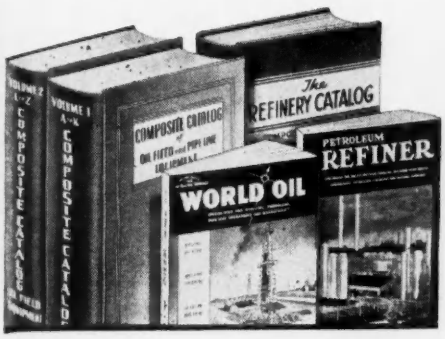
for the drilling-producing-pipe line industry

PETROLEUM REFINER and The REFINERY CATALOG
for the refining-natural gasoline industry



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Contents

JULY 28, 1947

VOLUME 126, No. 9

Midyear Statistical Articles

HIGHER DEMAND INDICATED BY REVISED FORECAST 54

DEMAND UP LESS SHARPLY AT MIDDLE OF YEAR 56
By L. J. Logan

COMPLETIONS SHOW 5 PERCENT GAIN 62

GREATER DEPTHS CURB COMPLETIONS 63

WILDCATTING SUCCESS ABOVE AVERAGE 64

SHORTAGES HOLD DRILLING TO MODERATE INCREASE 65

MANY COMPANIES COMPETE IN PRODUCTION AND REFINING 70

SMALL FIRMS LOOM BIG IN COMPANY DRILLING 72

EXPLORATION AT ALL-TIME HIGH 75

Technical Articles

FREE PUMP SPEEDS DRILLING AND SEATING 81
By Gilbert M. Wilson

SLIME AND ALGAE CONTROL IN OIL FIELD FLOOD WATER 88

NORTHERN OKLAHOMA GAS COMPANY'S PIPE LINE SYSTEM 89
(25th of a Series)

RECOMMENDATIONS ON U. S. NATIONAL OIL POLICY 90
(Third of Four Parts)

DRILLING HINTS 98

News and Departments

LOOKING AHEAD 2
THE OUTLOOK 47
THE CHANGING PANORAMA 49
THE WEEK'S NEWS 50
CRUDE PRODUCTION 52
PIPE LINE NEWS 53
PATENT ROUNDUP 94
NEW EQUIPMENT, LITERATURE 105
MARKET TRENDS 109
FIELD OPERATIONS 110
THE OIL MAN'S CALENDAR 118
EXPLORATORY FAILURES 129
MEN IN THE INDUSTRY NEWS 131
MANUFACTURERS' NOTES 133
BOOK REVIEW 134
SQUEAKS FROM THE BULL WHEEL 135
ADVERTISERS' INDEX 136

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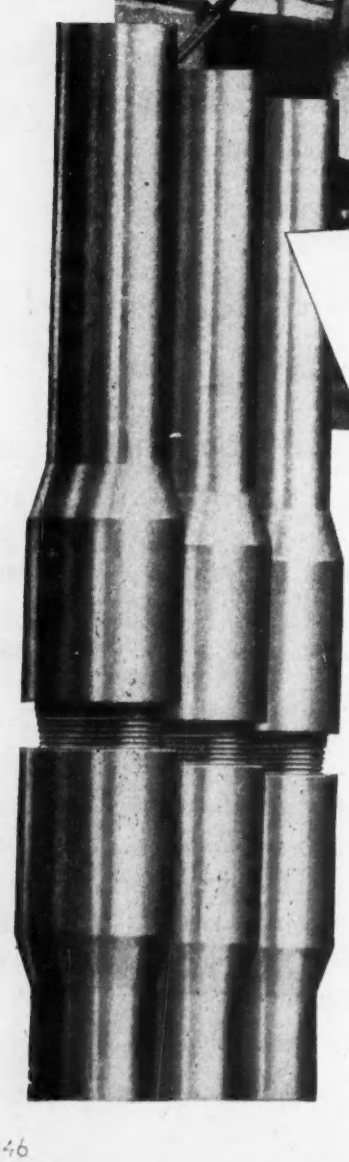

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THE CHANGING Panorama

Tight Oil Supply Being Relieved

IN SOLVING the current problem of stretching supply to meet greatly increased demand for petroleum products, the industry is measuring up to the same efficiency it demonstrated under similar challenge during the war.

Meeting the demand is requiring numerous special measures, but the industry is found equal to the occasion. As during the war, it is taking many costly and emergency steps to make oils available where and when needed.

Pipe lines have not only been operated to capacity but beyond normal capacity through all expedients possible. As an example, finished and unfinished gasoline are mixed with crude oil to reduce viscosity and accelerate flow, so that greater volume can be moved through the same facilities, although this expedient involves additional refining cost at destination. Marginal or submarginal refining units have been placed in operation after putting to capacity use all available plants affording normal operating efficiency.

Tank car movements of crude oil are now made in large quantities and over great distances even though these shipments are excessively costly and uncompensated by prices received. To make tank cars available for such movements, the industry has released many cars from short-haul service by substituting truck transportation for tank cars in more localized distribution.

Tankers and barges are operated at capacity in the industry's efforts to bridge the gap between sources of supply and the areas where supplies are scarce.

The Middle West is the only region where there is serious difficulty in meeting demand, and it is indicated that no important scarcity will develop in the rest of the country. Even in the Mid-West the problem is being alleviated through the above discussed expedients, and even more relief is in prospect. The industry is vigorously pushing several pipe line projects and refinery expansion programs, which are expected to relieve some of the tension by the latter part of 1947 or the early part of 1948.

Industry To Expand In All Divisions

THE $4 billion to be spent by the petroleum industry for expansion of facilities in 1947 and 1948 will increase the industry's investment from $14 to $18 billion. The capital expenditures will be divided among the several divisions of the industry as follows: 45 percent in production and the development of new reserves; 30 percent for adding 307,000 barrels per day of new refining capacity and replacing 100,000 a day of obsolete plants; 11 percent for pipe lines, tankers, tank cars, tank trucks, and other transportation facilities; 12 percent for service stations, bulk terminals and other marketing; and 2 percent for miscellaneous purposes.

The necessary funds will require some new financing as well as the use of substantial parts of recent and current earnings.

The expansion will have to be carried out to meet ever-growing demand, despite sharp increases in costs from prewar levels. Production and exploration costs are far higher, the latter being three times as great, due to deeper drilling, development in less accessible places, more dry holes, and other reasons.

Refining division costs are three times those of 1936 and seven times those of 1916, due to more complicated processes which conserve oils but are costly. Refinery equipment which cost $400 a barrel of capacity prewar now costs over $1000 a barrel.

Pipe line division costs have shown similar increase. Lines that cost $12,000 a mile prewar now costs $30,000 a mile. Marketing facilities now cost more than twice as much as before the war.

Heavy Gasoline Use Reflects More Cars

RECORD breaking demand for motor fuel this year reflects active production of new automobiles, trucks and busses; continued operation of a surprisingly large number of old vehicles; important aviation consumption; expanding agricultural use; large demand for other non-automotive purposes; and fairly active exports.

The forces acting toward increased motor fuel consumption have been stronger than those at work in the opposite direction, such as the public's balking at paying today's prices. However, abnormally high prices in many other industries, have eaten deeply into purchasing power, and consumers look at the price tags on oils as well as other things, in trying to make their dollars meet their needs.

Although hard to believe because of the several years' lapse in automobile production, there were almost as many motor vehicles used in 1946 as in 1941. The Public Roads Administration reported that 33,945,817 privately owned automobiles, busses, and trucks were registered during 1946. That was an increase of about 3,300,000 over 1945 and close to the all-time record of 34,383,167 registrations in pre-war 1941. Passenger cars were about 1,300,000 fewer than in 1941 but truck registrations were about 850,000 above 1941. This year is expected to bring another increase in truck registrations, and passenger car registrations should increase enough to be somewhere around the 1941 record.

Repeatedly, the scrapping of motor vehicles has been overestimated, and the continued use of old cars has made it possible for registrations to approach prewar much sooner than expected. Use of these less efficient cars and the present higher ratio of trucks among total vehicles result in relatively high average fuel consumption per vehicle.

THE WEEK'S NEWS

REVERSAL or review of its tidelands decision has been asked of the Supreme Court by the California authorities. Story below.

Rubber Industry Objects to Policy Bill—Government rubber policies, embodied in legislation to be introduced in Congress next year, has been disclosed to be highly objectionable to the domestic rubber industry. Page 52.

Protest Filed With Russian Government—Strong protest has been filed with the Russian government over its failure to settle claims for Soviet removal of American-owned oil equipment from Roumania. Page 52.

FPC Hurls New Charge at Rizley Bill—Winning its fight for deferment of the Rizley bill, the Federal Power Commission voices a new charge that the "common carrier" provision would permit anyone to build a natural gas pipe line without any regulation whatever. Page 53.

Standard to Make No Further Price Increases—Asserting belief that higher prices will contribute nothing to the solution of the current short supply problem, due to lack of facilities and not to lack of oil, Standard Oil Company (New Jersey) has announced it will make no further price increases in crude or products under present conditions. Page 51.

Brown Heads Military Oil Committee—Bruce K. Brown, president of Pan American Petroleum Corporation, has been named chairman of the Military Petroleum Advisory Committee. The committee was set up to study the oil aspects of military plans and problems and act in an advisory capacity in the A-NPB. Page 52.

Government Acquires Helium Rights—Acquisition of all rights in the Rattlesnake field on the Navajo Indian Reservation, New Mexico, under recent enacted legislation, has strenghtened the government's helium monopoly. Page 51.

Ordnance Works Returned to Mines Bureau—The Missouri Ordnance Works has again been returned to the Bureau of Mines for conversion into a synthetic fuel demonstration plant. Page 52.

Congress By-Passes Oil Legislation—The first session of the 80th Congress is leaving for consideration next year much legislation of importance to the oil industry and to the country at large. Page 51.

Canada Reimposes Export Regulations on Oil—Canada has moved to assist the United States in controlling exports of American petroleum products by reimposing export regulations on crude oil. Page 51.

Reversal or Review of Supreme Court Tidelands Rule Sought by California

A petition for reversal or review of its opinion holding that the United States is owner of the California tideland oil fields will be among the first matters to be passed on by the Supreme Court when it convenes for its 1947-48 term October 6.

Taking its last remaining chance of upsetting the decision, California contended it had been reached "without the examination of factual, historic and legal data by a trial court" with the result that "at least six established principles of law were overlooked."

These principles, the petition explained, included rules that constitutional grants to the federal government do not yield property rights; prior rejection by the court that federal ownership of tidelands is essential to full control over external affairs; the rule that territory can be annexed only by action of Congress; a rule that the original states and not the Federal Government own the marginal belt, and the rule that property law on which innumerable titles rest should not be rejected.

Meanwhile, while Justice and Interior Department and California officials and operators wrangle over what lands are covered by federal title, effects of the court decision began to spread.

Humble Halts Work

In Louisiana Humble Oil & Refining Company announced it would abandon operations in Gulf waters because of fears that the government's tideland attack would next be directed there, and state officials admitted they were apprehensive that they would get no bids under their recent call for leases on some 300,000 acres of underwater oil lands.

In Washington, military officials urged the negotiating group to reach a quick agreement and give California operators assurance they would be protected, warning that if this is not done and the operators are forced out it would be a great detriment to further exploration and development.

On the House floor, Representative Charles K. Fletcher of California declared Humble's action is one of the first unfortunate consequences of the court ruling, which he said raised doubts as to ownership of the tidelands of other states, and if similar action is taken by other companies it would be a threat to the national defense.

Fletcher charged that the court, rather than Congress, was legislating, and asserted it was time Congress acted to assure the continued oil production necessary for defense and the civilian economy.

The development of the proposed decree which the court ordered filed with it in September is reported tied up by arguments as to just what lands are on the open ocean, held by the court to belong to the United States, and what are in bays, harbors and navigable rivers. The line of demarcation is drawn between headlands, and the arguments revolve around which headlands are to be used as base points.

At the same time some Justice officials want assurances from all of the affected California operators that they will continue to produce, before going into court with any proposed decree. Some operators, it is learned, are considering the halting of operations because of doubt whether they are responsible to the state or federal government.

However drawn, it is said, the line will leave some oil lands in the possession of the state, as being within the confines of harbors and bays.

Several considerations led to the decision not to press for action this year on legislation restoring title to the lands to the state, but it will be one of the first matters pressed next session. By then, it is hoped, the situation will have been ironed out and the exact limits of the territory claimed by the federal government will have been drawn.

Strong Drive Slated

California interests will make a strong drive during the next five months to line up support among the officials of the other coastal states, realizing that if any legislation is to be effective it must be passed by enough votes to insure that a veto by the president would be overridden.

Army and Navy officials so far are keeping out of discussions of the desirability of such legislation, pointing out that any position they take, and they probably will be called upon to take one when the measure comes up next year, would have to be based upon the evaluation of a number of factors, one of which would be the desirability of the increased production which return of the lands to the state would give, and another the continuation of current policies on reserves for emergency.

Important Oil Industry Legislation Is Left by Congress for Next Session

Long on promise and short on performance, the first session of the 80th Congress is leaving for consideration next year much legislation of importance to the oil industry and to the country at large.

Of the promised $6 billion cut in government expenditures only about $3 billion actually was achieved. The promised 20 percent cut in individual income taxes failed to survive two trips to the White House.

The Rizley bill to amend the Natural Gas Act went through the House but was stymied in the Senate where a six-to-five vote in the Interstate Commerce Committee held it back until next session. Legislation restoring title to the California tidelands to the state failed to get out of committee. The Anglo-American Petroleum Agreement was favorably reported by the Senate Foreign Relations Committee, but no pressure was exerted to secure approval by the Senate. Rubber-policy legislation, involving the fate of the war-born synthetic rubber industry, was deferred until the 1948 session.

On the other side of the ledger, Congress chalked up a four-year extension of the Interstate Oil Compact, continued export control until February 29, with emphasis upon the restriction of oil and oil-steel exports, and passed legislation creating a National Science Foundation to correlate federal and private research; a program to eliminate stream pollution by a joint federal-state-industry effort, and granted the right of eminent domain to natural gas companies unable to reach agreements with land owners for right-of-ways.

In dealing with appropriations, Congress cut the Interior Department by about $100 million, but the Senate succeeded in keeping the Oil and Gas Division alive after the House voted practically to wipe it out by confining its fund to $124,000, all earmarked for enforcement of the Connally Hot Oil Act. The Senate proposed to give OGD $324,730, as against a requested appropriation of $400,000, and agreement finally was reached on $275,000, of which $175,000 will be for Connally Act enforcement; the $100,000 provided for general expenses, while sharply curtailing its activities, will permit the OGD to deal with some of the immediate problems of coordinating and unifying government oil and gas policies.

The Senate also succeeded in securing some increases in funds for the Geological Survey and Bureau of Mines. For the former, $2,300,000 finally was granted for geological surveys, instead of $1,690,000 as proposed by the House and $2,374,500 as proposed by the Senate, and $650,000 for mineral leasing, as proposed by the Senate against $434,210 set by the House. The Bureau of Mines was given $600,000 for oil and gas investigations, a compromise between the $579,000 fixed by the House and $634,550 sought by the Senate.

Both houses passed legislation authorizing the leasing for oil and other production of lands acquired by the federal government and not reserved specifically for military or naval purposes or for development of mineral deposits.

The bill would extend the provisions of the Federal Leasing Act to such lands, to be administered by the Secretary of the Interior.

In passing the legislation, the House added a rider that nothing in the act shall apply to or affect any rights, permits or leases in the tidelands or continental shelf and in both houses members emphasized that it was not intended that the underwater lands could be covered by the measure.

Committees Are Named for Drilling Contractors Parley

Plans for the annual convention of the American Association of Oil Well Drilling Contractors, to be held at Long Beach, California, October 13-15, are near completion.

J. E. Warren, association president, has announced the chairmen of the local arrangement committees. They are: K. L. Kellogg, central committee; D. H. Graham, housing and publicity; George McCarthy, entertainment; Ralph Marshall, finance; A. S. Hayes, program; C. L. Fowler, transportation; J. E. Pettijohn, banquet and food, and Gene Reid, registration.

Canada Reimposes Export Regulations on Crude Oil

Canada has reimposed export regulations on oil, a move which government officials said was to assist the United States in controlling exports of American petroleum products.

An official of the Trade Department in Ottawa said the move was made "as a matter of cooperation" with the U. S. Recently imposed U. S. regulations strictly limited exports of petroleum to all countries other than Canada. The Canadian regulations, the official said, would prevent the Dominion from becoming a "back door" through which private American exporters could channel their products.

The spokesman said the department had "no intention" of preventing the small flow of Canadian oil now moving to Newfoundland and the British West Indies.

Ernest Cockrell Dies

Ernest Cockrell, 67, Houston independent oil operator and president of the Houston Club, died of a heart attack July 24 in Raton, N. M. At the time of his death, Cockrell and his wife were en route to his ranch near Moran, Wyoming.

Jersey Standard Will Hold Line on Crude Oil Prices

Asserting the belief that higher prices, which normally bring out added supplies and tends to balance supply and demand, will contribute nothing to the solution of the current short supply problem, due to lack of facilities and not to lack of oil, Standard Oil Company (New Jersey) announced last week it will make no further increases in prices of crude or products under present conditions.

"We feel that such price increases would only be inflationary and should be resisted," the company said, explaining that "under present conditions where a shortage of fabricated steel and other material limits the industry's ability to produce, transport and refine more crude oil, further price increases in either crude or products will not be effective in increasing the overall supply of petroleum products.

"Further increases in the price of crude oil or products under present conditions are not in the best interest of either the oil industry or the public," the company added.

Government Acquires All Rights in Helium Gas Field

The government's helium monopoly has been strengthened, under the legislation recently enacted by Congress, by the acquisition of all rights in the Rattlesnake field on the Navajo Reservation in New Mexico.

Two companies which have leases in the field, Continental Oil Company and Santa Fe Corporation, will be compensated in the sum of $166,594 for their interests, and the Navajo Tribe will be paid $147,799 as advance royalty and rental for 25 years. The two companies, however, will continue to hold rights for production other than of helium-bearing gas. Drilling for oil in the field has been under way since 1923 when a lease now owned by the two companies was granted on 4080 acres. In 1942 Continental secured another lease on 3720 acres adjoining the original grant.

Navajo Indian Reservation Tracts Offered for Lease

Bids have been announced for oil and gas leases on two tracts of Navajo tribal lands on the Navajo Indian Reservation, and two tracts of allotted Indian lands outside the boundary of the reservation in New Mexico.

One tribal tract of about 2035 acres is located south of the San Juan river in 29-N, 16-W, San Juan County, New Mexico, and the other of about 4080 acres is on the Boundary Butte area in San Juan County, Utah. The allotted lands offered comprise approximately 3680 acres in 22-N-8 and 9-W, San Juan, County, New Mexico, and about 6400 acres in 15-N, 13 and 14-W, McKinley County, New Mexico.

The bids will be accepted by the General Superintendent, Window Rock, Arizona, until 2 p.m., August 18.

U. S. Protests Roumania Oil Equipment Action by USSR

A strong protest against the refusal of Russia to reach an agreement on claims arising out of the removal from Roumania in the early days of Russian occupation of American-owned oil equipment has been filed with the Soviet Foreign Office by the State Department, but with little hope that it will have any effect.

The equipment involved amounted to approximately 7000 tons taken from the properties of Romano-Americana, the Rumanian subsidiary of Standard Oil Company (New Jersey), having a value at the time of approximately $1 million.

The State Department's announcement that it had withdrawn from participation in a joint U. S.-Soviet oil commission set up under the Potsdam agreement to settle claims arising from the removal of oil equipment in Roumania reviewed the efforts which had been made to reach a settlement and gave an enlightening exposition of Soviet "cooperation."

Weichel Committee Urges Tighter Export Controls

After lengthy hearings, the House Merchant Marine Committee last week urged prompt enactment of legislation prohibiting the exportation of oil products except upon certification by the Secretary of Commerce that shipments would not interfere with the national defense or national security or impair civilian supplies.

In this way, Committee Chairman Alvin F. Weichel of Ohio, who has severely censured the Commerce Department for ignoring his demand that further shipments to Russia be prohibited, sought to tighten up the recently-enacted legislation extending export controls until next February 29, under which the department had indicated it would continue to permit export shipments to Russia and other countries which normally procure supplies in the United States.

Rubber Industry Plans Policy Legislation Fight

Rubber-policy legislation which has been readied for introduction in Congress next January will be vigorously fought by the rubber industry, whose recommendations were almost totally ignored by the inter-government agency committee and the Army-Navy Munitions Board in drafting the bill.

The bill, which government agencies are holding as confidential, provides for minimum consumption of synthetic rubber to provide for sufficient production capacity to meet the needs of national security, with mandatory usage of synthetic to assure such minimum consumption; requires that one-third of the total general purpose rubber shall be synthetic and that four percent of the estimated total new rubber consumed shall be synthetic of the butyl type suitable for inner-tube production; sets up a national rubber council composed of the Secretaries of Commerce, War, Navy and State to administer this policy, the first to be chairman and to appoint a rubber administrator at $12,500 a year; transfers all natural rubber stocks in the hands of RFC to the permanent strategic stockpile; calls for the sale or lease of government-owned synthetic plants to private industry at the earliest possible date; and provides for stand-by facilities so that total active and stand-by capacity of the synthetic industry is at least 600,000 long tons a year of GR-S (general purpose) rubber.

Major target of industry objection is the creation of a government agency, which John L. Collyer of the B. F. Goodrich Company, chairman of the A-NMB, declared would be another "bureaucratic NRA."

U. S. Royalty Law Changed

The Bureau of Land Management has amended its regulations on overriding royalties or payments out of production in section two of oil and gas lease form 41213, to limit the obligation to pay in excess of five percent to periods during which the average production per well per day is more than 15 barrels on an entire leasehold or any part of the area thereof or any zone segregated for the computation of royalties. The previous regulations, issued June 6, limited such payments to periods when the average production was 15 barrels or less.

Crude Oil Production in the United States

(Estimates compiled by WORLD OIL. All figures indicate daily averages in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED July 26	July 19
Alabama	1,100	1,150
Arkansas	75,500	75,500
California	922,400	921,800
Colorado	45,000	46,000
Florida	1,075	1,100
Illinois	168,100	181,500
Indiana	17,700	18,000
Kansas	296,400	294,750
Kentucky	26,000	27,000
Louisiana	421,450	421,300
North Louisiana	96,900	96,750
South Louisiana	324,550	324,550
Michigan	45,000	53,000
Mississippi	98,900	97,150
Missouri	100	100
Montana	23,000	23,000
Nebraska	550	550
New Mexico	108,650	108,650
New York	13,200	13,200
Ohio	8,700	8,275
Oklahoma	384,750	388,100
Pennsylvania	34,800	34,800
Tennessee	25	25
Texas	2,255,250	2,224,050
Tex. R. R. Comm. Districts:		
Dist. 1—South Central	22,000	22,400
Dist. 2—Middle Gulf Coast	138,825	163,350
Dist. 3—Upper Gulf Coast	487,150	479,650
Dist. 4—Lower Gulf-S.W.	209,650	241,650
Dist. 5—East Central	39,175	39,150
Dist. 6—East Texas Field	324,000	324,000
Dist. 6—Rest of Northeast	112,700	113,400
Dist. 7-B—North Central	37,100	37,100
Dist. 7-C—West Central	39,200	38,850
Dist. 8—West	637,250	555,250
Dist. 9—North	124,000	125,500
Dist. 10—Panhandle	84,200	83,750
Virginia	200	200
West Virginia	7,500	7,000
Wyoming	118,500	117,800
Total United States	5,073,850	5,063,900

Total stocks, foreign and domestic, July 19, as reported by the Bureau of Mines were 231,852,000 barrels.

Military Oil Committee Headed by Bruce K. Brown

Election of Bruce K. Brown, president of Pan American Petroleum Corporation and vice president of Standard Oil Company (Indiana), as chairman of the Military Petroleum Advisory Committee was announced July 23 by Vice Admiral John H. Hoover, chairman of the Army-Navy Petroleum Board, and OGD Director Max W. Ball.

The committee, with 15 members, was set up by Ball at the request of the Secretaries of War and Navy to study the oil aspects of military plans and problems and act in an advisory capacity to the ANPB.

Outlining the field of his group, which held its first meeting with ANPB officials July 9, Brown declared it will not take any part in the procurement of military oil needs or any other phase of the peacetime economy except to the extent that security and defense questions may be involved.

Brown, who was assistant deputy administrator of PAW during the war, pointed out that the same sources of data and the industry expert opinion then utilized are now needed for the solution of the special problems inherent in immediate and long-range security planning.

Missouri Ordnance Works Returned to Mines Bureau

Tossed out last year when the Army took back the plant for fertilizer production, the Bureau of Mines again is in possession of the Missouri Ordnance Works and has resumed the job of converting it for synthetic liquid fuels production. The $10 million project is expected to be completed in time for the plant to be producing gasoline and oil from coal and lignite by the end of next June.

The ordnance works, near Louisiana, Mo., was turned over to the bureau in 1945, but last summer the War Department had to retake it for emergency production of ammonia for fertilizers. It was turned back to the bureau early this month, and transferred an engineering and administrative staff from Torrance, Calif.

Much of the facilities and equipment of the original plant, which cost the government $17,500,000, can be used with little modification for the bureau's demonstration of synthetic fuel production, but it will be necessary to add a number of buildings and considerable additional equipment.

Aviation Gas Offers Few

Army-Navy Petroleum Board officials expressed themselves last week as "disappointed" over the lack of response to their repeated appeals for tenders of aviation gasoline and Navy special fuels. A few small offers have been received in response to the latest call, they said, but military needs are still far from being filled despite the efforts of the National Petroleum Council and the open discussion of the situation before congressional committees.

FPC Charges Rizley Legislation Would Hurt Regulation of Rates and Service

Charging that the Rizley bill as passed by the House was full of "contradictions, ambiguities and uncertainties" and would seriously hamper effective regulation of rates and service, the Federal Power Commission last week filed a censurious report on the measure with the Senate Interstate and Foreign Commerce Committee.

The commission report went to the committee as Senator Ed H. Moore of Oklahoma, co-sponsor of the bill, contemplated a final effort to blast the legislation out of committee so that it could be acted upon before adjournment. Earlier, by a 6-to-5 vote, the committee laid the measure over until next year.

Following its original strategy of dividing supporters of remedial legislation by offering an immediate concession in return for delay in over-all revision of the law, the commission suggested that Congress enact a bill exempting independent producers and gatherers from the act and defer action on other phases until next year.

Reiterating all of the arguments it has offered during the whole course of the measure's consideration, FPC told the committee that "notwithstanding the purported objective of H. R. 4051 to clarify the respective spheres of state and federal regulation, it would actually create important 'regulatory gaps.' Within the 'twilight zones' from which jurisdiction of the commission would be withdrawn or left unclear, the bill gives no assurance that the states would have the necessary authority to act."

Further, the commission asserted, Section 7 of the Rizley bill, permitting natural gas companies to qualify as common carriers and transfer to the jurisdiction of the Interstate Commerce Commission, would enable pipe lines to escape nearly all regulation, both federal and state.

This section, it was pointed out, was added to the bill after committee hearings were closed and, the commission declared, it is extremely important because under ICC control no certificate of public convenience and necessity would be required for the construction of new pipe lines.

"Hence," the committee was told, "it is plain that anyone in a position to take advantage of this situation could build and operate pipe lines at will—unlimited by any regulatory authority, state or federal.

"Owners of substantial gas reserves in, say, Texas or Oklahoma, could then arrange for its transportation through the carrier facilities of others to reach markets anywhere in the United States. Deliveries and sales of gas at the destinations would not be subject to regulation under any existing Federal statute and, being in interstate commerce, it is very certain that these transactions could not be regulated by the states. Such operations, by those free from any obligations to comply with just and reasonable regulations of their rates and service, might seriously disrupt the natural-gas markets of established pipe-line and distribution systems rendering a general utility service."

Hawkins Oil Movements

Humble Oil & Refining Company is supplementing its shipments of crude production and purchases from the Hawkins field, Wood County sector of East Texas, through the Humble Pipe Line Company's system by dispatching 12,000 barrels daily of this low-gravity oil by tank cars to Standard Oil Company (New Jersey) at Baton Rouge, La. The rail movement will continue until 250,000 barrels have been delivered.

Oklahoma Line Extended

An extension of Interstate Oil Pipe Line Company's pipe line system from Oklahoma City into the Katie-Maysville area of Garvin County, Oklahoma, will be started after final plans and specifications are prepared. The line will be 50 miles long, and will provide improved pipe line transportation facilities for the rapidly growing production in that area.

Chicago District Company Leases Illinois Facilities

The Federal Power Commission has granted authority to Chicago District Pipe Line Company to acquire by lease and operate extensions of its Crawford and Calumet lines and specified connecting laterals now owned and operated by The Peoples Gas, Light and Coke Company in Illinois.

Leased facilities include a 20- and 24-inch line from the terminus of Chicago District's Crawford line at the western city limits of Chicago to the intake of its metering station on the Crawford plant site of Peoples company, and a 24-inch line from the terminus of Chicago District's Calumet line at the southern city limits of Chicago into the Calumet station of the Peoples company, together with regulating and metering facilities and two lateral lines to delivery points to Northern Indiana Public Service Company on the Illinois-Indiana state line.

Kentucky Gas Line Slated

Temporary authorization has been granted the Central Kentucky Natural Gas Company by FPC to construct 23.2 miles of 24-inch pipe line from Foster, Ky., to a point on the Ohio River connecting with the Cincinnati Gas and Electric Company, and to build a new measuring station at Cold Spring, Ky., at a cost of $1,933,000. The new facilities are to be used to deliver additional natural gas to the Cincinnati company and its subsidiary, Union Light, Heat and Power Company.

Three Contractors Work On Magnolia Oil Carrier

Magnolia Pipe Line Company has welded 120 miles of its projected 647 miles of 20-inch crude trunk line from Corsicana, Texas, to Patoka, Ill., where it will tie into the company's East St. Louis-Lima, Ohio, east-west carrier. Three contractors are at work on the line, which is due to be completed early in 1948 with an intial capacity of 105,000 barrels daily. Sites for the four stations have been acquired, and construction contracts awarded.

Work is underway on the enlarged tank farm to be installed at the north and south terminal. Four 120,000-barrel and one 80,000-barrel tanks have been allocated Corsicana, while the Patoka terminal will have two 120,000-barrell and nine 80,000-barrel tanks. Construction contracts for crossing the Red, White and Mississippi Rivers will be awarded shortly.

Mid-Continent Pipe Line Names Linehan President

J. Marston Linehan, vice president and general manager of the Mid-Continent Pipe Line Company, has been made president of the firm, following resignation of Jacob France, chairman of the board of the Mid-Continent Petroleum Corporation, as president of the pipe line company.

Linehan joined Mid-Continent in 1933 as superintendent of the Southern Division, later becoming assistant superintendent, and then general superintendent. He was named vice president and general manager in 1944.

The company operates a 1500 mile crude oil transportation system which connects the major producing areas of Oklahoma with the West Tulsa refinery of Mid-Continent Petroleum Corporation.

Kansas Line Is Completed

Natural Gas Pipe Line Company of America has completed construction of a 70-mile 26-inch loop between Wilson, Kansas, and the Larned area. Contractors for the project, J. R. Horrigan Construction Company, O. E. Dempsey and Joe Dempsey, are now working on another loop for the company, consisting of 69 miles of 26-inch and crossings for the Big and Little Blue Rivers. The loop originates at Unadilla, Nebraska, and terminates at a point 15 miles inside the Kansas line.

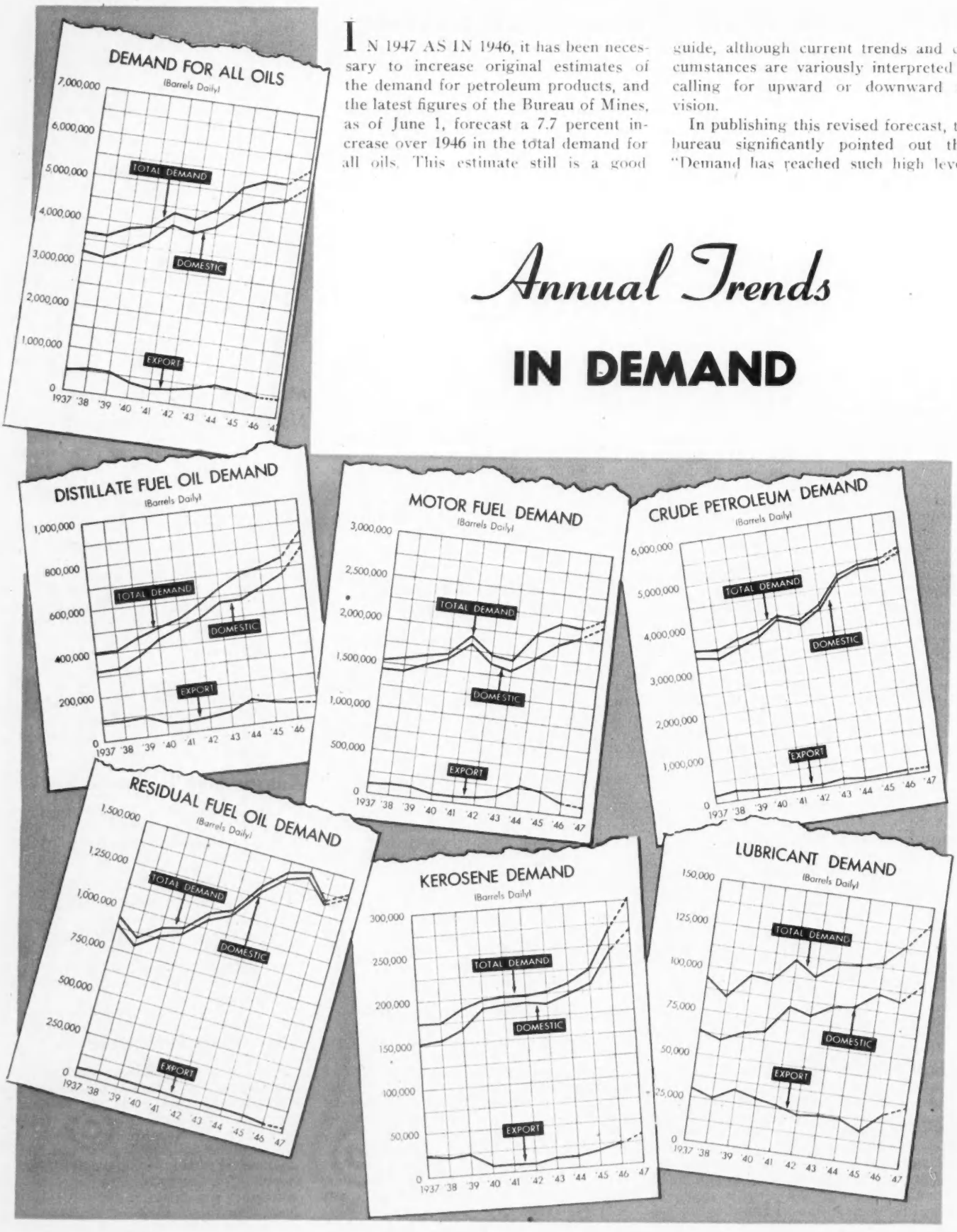
Short Line Authorized

FPC has approved a trial examiner decision that Colorado-Wyoming Gas Company be authorized to construct a one-mile pipe line from the Hugoton field to a new compressor station from which about 100 miles of 8- and 10-inch pipe will be laid to Cheyenne, Wyo., to enable the company to receive and transport gas from Colorado Interstate Gas Company. Cost of the project is estimated at $1,542,450.

Higher Demand Indicated by

Annual Trends

IN DEMAND



IN 1947 AS IN 1946, it has been necessary to increase original estimates of the demand for petroleum products, and the latest figures of the Bureau of Mines, as of June 1, forecast a 7.7 percent increase over 1946 in the total demand for all oils. This estimate still is a good guide, although current trends and circumstances are variously interpreted as calling for upward or downward revision.

In publishing this revised forecast, the bureau significantly pointed out that "Demand has reached such high levels

Revised Forecast

that the forecast represents more nearly the probable supply of refined products available than the potential ability to consume oil. The limiting factor is refinery capacity." The forecast also made mention of the fact that local shortages in oil supply had resulted from limitations in pipe line capacity and lack of available tank cars.

Since the report was issued, the demand for gasoline in the Middle West has had a ceiling placed over it through company allocations of supplies to dealers, and heating oils might have been moving in somewhat larger volume if more supplies were available. Thus, the limitations on demand in the form of inadequate refining and transportation facilities already are being demonstrated as foreseen by the bureau.

Marginal Refining Capacity

However, there is a substantial amount of existing marginal refining capacity—as much as several hundred thousand barrels daily—which normally would remain idle because of being inefficient and expensive to operate, but which can be operated. In the present tight supply situation, this utilization of inefficient refining capacity may assume important proportions and result in the actual fulfillment of demand in excess of the above estimate for the year, although the special measures in refining also necessitate corresponding extraordinary efforts in transportation of oils.

In view of recent trends of refinery runs and crude production at record levels, there are now some indications that the industry will succeed in providing supply in volume very close to potential demand; that more demand will be satisfied than the above forecast anticipated. As demand has become more insistent, efforts of the industry have been intensified. In the determination to do everything possible to satisfy the needs of their customers, many oil companies are resorting to various extraordinary measures in refining, transportation, and production. While the Bureau of Mines forecast assumed a limit of 5 million barrels per day on refinery runs for both the third and fourth quarters of 1947, the industry actually ran to stills an average of more than 5,100,000 barrels daily in June, and a prominent oil company executive estimated that a rate of 5,200,000 daily could be maintained consistently, through utilization of marginal refining capacity. Crude production, while crowding maximum efficient rates in nearly all areas, is a somewhat lesser problem, and has been kept abreast of refinery requirements. Although the forecast on the basis of refinery runs of 5 million barrels daily called for domestic crude production of a little less than 5 million barrels per day, output actually was maintained at the rate of approximately 5,100,000 daily during June.

Demand Prospect

While the discussion above assumes continuance of demand in volume hard to satisfy, there is a possibility that the potential demand may not prove so great as some observers anticipate. It is true that the total demand for all oils in the first quarter of 1947 broke all records for the season and was 12.6 percent greater than in the corresponding period of 1946. But data for later months indicated smaller increases over 1946, beginning with a 9.7 percent increase for April. The view has been expressed that first-quarter indicated demand may have been substantially greater than actual consumption because of purchases for secondary storage by marketers, expecting scarcity and higher prices. Demand as calculated by the Bureau of Mines reflects changes in stocks at refineries and bulk terminals but not beyond those

■ CONTINUED ON PAGE 61

Revised Forecast, United States Supply and Demand, All Oils, 1947, By Quarters

(Source: Bureau of Mines Monthly Petroleum Forecast, June, 1947)
(THOUSANDS OF BARRELS)

ITEM	First Quarter (Actual)	Second Quarter	Third Quarter	Fourth Quarter	1947 Year	1946 Year	Percent Dif. '46-'47
Domestic Production:							
All Oils	463,300	486,000	489,000	489,400	1,927,700	1,850,700	+ 4.2
(Daily Average)	5,148	5,340	5,315	5,320	5,282	5,070	
Crude Oil	431,700	453,200	455,400	455,400	1,795,700	1,733,400	+ 3.6
(Daily Average)	4,796	4,980	4,950	4,950	4,920	4,749	
Other Oils	31,600	32,800	33,600	34,000	132,000	117,300	+12.5
(Daily Average)	352	360	365	370	362	321	
Imports:							
All Oils	43,400	43,400	44,100	45,100	176,000	135,000	+30.4
(Daily Average)	482	477	480	490	482	370	
Crude Oil	25,400	25,700	26,000	26,000	103,100	86,100	+19.7
(Daily Average)	282	282	283	283	282	236	
Other Oils	18,000	17,700	18,100	19,100	72,900	48,900	+49.1
(Daily Average)	200	195	197	207	200	134	
Change in Stocks:							
All Oils	—26,100	+18,600	+23,300	— 4,500	+11,300	+43,500	
(Daily Average)	— 289	+ 204	+ 254	— 49	+ 31	+ 119	
Crude Oil	+ 4,800	+11,800	— 3,700	— 1,800	+11,100	+ 6,900	
(Daily Average)	+ 54	+ 130	— 40	— 20	+ 30	+ 19	
Other Oils	—30,900	+ 6,800	+27,000	— 2,700	+ 200	+36,600	
(Daily Average)	— 343	+ 74	+ 294	— 29	+ 1	+ 100	
Demand:							
All Oils	532,800	510,800	509,800	539,000	2,092,400	1,942,200	+ 7.7
(Daily Average)	5,919	5,613	5,541	5,859	5,733	5,321	
Motor Fuel	180,600	215,000	225,000	205,000	825,600	780,200	+ 5.8
(Daily Average)	2,007	2,363	2,446	2,228	2,262	2,138	
Residual Fuel	140,200	124,000	117,000	130,000	511,200	486,600	+ 5.1
(Daily Average)	1,557	1,363	1,272	1,413	1,401	1,333	
Distillate Fuel	101,700	66,000	56,000	87,000	310,700	272,300	+14.1
(Daily Average)	1,130	725	609	946	851	746	
Kerosine	35,400	22,000	20,000	33,000	110,400	97,700	+13.0
(Daily Average)	393	242	217	359	302	268	
All Other	74,900	83,800	91,800	84,000	334,500	305,400	+ 9.5
(Daily Average)	832	920	997	913	917	836	
Crude Requirements:							
Runs to Stills	432,000	443,800	460,000	460,000	1,795,800	1,730,100	+ 3.8
(Daily Average)	4,800	4,875	5,000	5,000	4,920	4,740	
Demand for Domestic Crude	428,130	440,765	459,080	457,240	1,785,215	1,727,545	+ 3.3
(Daily Average)	4,757	4,845	4,990	4,970	4,891	4,733	

NOTE:—This revised forecast for the second quarter is based, in part, on current data available for April and May. Imports have been projected for the year at the daily average rate for the first quarter. The demand for domestic crude oil may vary with changes in the import rate of crude petroleum or with the amount of crude that can be run to stills. The estimated demand for all oils is primarily a matter of the supply of products as limited by available refinery capacity.

Demand Up Less Sharply at

By L. J. LOGAN, Associate Editor

IN THE first half of 1947 the petroleum industry encountered the greatest demand for its products ever experienced in the months involved, and in satisfying that demand, the industry's operations were stepped up to the highest levels on record. These new highs were set despite the fact that operations had to exceed the wartime peaks reached in the first half of 1945.

As the first half of 1947 closed, crude runs to stills were above 5,100,000 barrels daily, compared with the 1945 wartime high of about 5 million daily, and domestic crude production also was around 5,100,000 barrels per day, compared with a 1945 wartime high of 4,900,000 daily. For 1947 as a whole, the curves will be well above those of 1945, as no let-down is indicated for this year, whereas the closing part of 1945 brought the declines of the immediate postwar months.

The total demand for all oils in the first half of 1947 averaged approximately 5,796,000 barrels daily, an increase of 10 percent over the 5,270,000 daily of the first half of 1946 and 4 percent more than the peak wartime demand of 5,575,000 daily in the first half of 1945. This year's demand represents an increase of 38.1 percent over that of the first half of 1941, the final prewar year, when the average was 4,197,000 barrels per day.

Although exports have been about 4.8 percent greater this year than last year up to midyear, they have been less than in 1945. They averaged about 454,000 barrels daily in the first half of 1947, compared with 433,000 last year and 620,000 in 1945.

Domestic Demand

Domestic demand averaged approximately 5,342,000 barrels daily in the first six months of 1947, an increase of 10.4 percent over the 4,837,000 daily last year

U. S. Crude Oil Production, by States and Districts, June and First 6 Months

From U. S. Bureau of Mines, except May and June, 1947, estimated from A.P.I. weekly reports

(THOUSANDS OF BARRELS)

STATE OR DISTRICT	MONTH TOTAL, JUNE				DAILY AVERAGE IN JUNE			TOTAL FIRST 6 MONTHS			
	1941	1946	1947	% Diff. 1946-47	1941	1946	1947	1941	1946	1947	% Diff. 1946-47
Alabama	.....	34	35	+ 2.9	.....	1.1	1.2	.....	192	179	— 6.8
Arkansas	2,163	2,323	2,270	— 2.3	72.1	77.4	75.7	12,846	13,944	14,207	+ 1.9
California	19,168	26,073	27,573	+ 5.8	638.9	869.1	919.7	111,849	154,991	163,754	+ 5.7
Colorado	195	1,027	1,232	+ 20.0	6.5	34.2	41.1	918	5,045	6,982	+ 38.4
Florida	.....	8	22	+175.0	.....	.3	.7	.....	30	85	+183.3
Illinois	10,302	6,290	5,641	— 9.0	343.4	206.7	188.0	59,938	37,732	34,487	— 9.7
Indiana	644	577	529	— 8.3	21.5	19.2	17.6	3,752	3,378	3,152	— 6.7
Kansas	6,886	7,959	8,474	+ 6.5	229.5	265.3	282.5	37,655	46,636	50,568	+ 8.4
Kentucky	385	897	776	— 13.5	12.8	29.9	25.9	2,420	5,374	4,612	— 14.2
Louisiana	9,632	11,583	12,545	+ 8.3	321.1	386.1	418.2	55,252	68,514	75,888	+ 10.8
North Louisiana	2,074	2,471	2,903	+ 17.5	66.8	82.4	96.8	12,285	14,136	17,603	+ 24.5
South Louisiana	7,628	9,112	9,642	+ 5.8	254.3	303.7	321.4	42,967	54,378	58,285	+ 7.2
Michigan	1,168	1,423	1,298	— 8.8	38.9	47.4	43.3	6,962	8,548	7,712	— 9.8
Mississippi	858	1,921	2,849	+ 48.3	28.6	64.0	94.9	4,253	10,460	15,975	+ 52.7
Missouri	4	4	4	.....	.1	0.2	.1	23	28	26	— 7.1
Montana	617	766	705	— 8.0	20.6	25.5	23.5	3,575	4,473	4,134	— 7.6
Nebraska	134	24	17	— 29.2	4.5	0.8	.6	734	144	112	— 22.2
New Mexico	3,292	3,001	3,192	+ 6.4	109.7	100.1	106.4	19,177	17,986	19,086	+ 6.1
New York	422	405	392	— 3.2	14.1	13.5	13.1	2,499	2,431	2,362	— 2.8
Ohio	297	245	251	+ 2.4	9.9	8.2	8.3	1,697	1,443	1,478	+ 2.4
Oklahoma	12,651	11,118	11,658	+ 4.9	421.7	370.6	388.6	75,747	67,698	68,480	+ 1.2
Pennsylvania	1,345	1,092	1,028	— 5.9	44.8	36.4	34.3	8,117	6,442	6,212	— 3.6
Tennessee	1	1	.....	—100.0	.0	.....	.....	6	6	3	— 50.0
*Texas	41,928	66,730	68,669	+ 2.9	1,397.6	2,224.4	2,289.0	242,286	372,049	388,099	+ 4.3
Dist. 1—South Central	604	580	650	+ 12.1	20.1	19.3	21.7	3,653	3,479	3,711	+ 6.7
Dist. 2—Middle Gulf	2,027	4,648	4,996	+ 7.5	67.6	154.9	166.6	11,241	24,160	27,757	+ 14.9
Dist. 3—Upper Gulf	7,554	15,085	14,835	— 1.7	251.8	502.8	494.5	42,909	81,282	84,762	+ 4.3
Dist. 4—Lower Gulf-Southwest	4,116	6,871	7,431	+ 8.2	137.2	229.0	247.7	23,895	38,680	42,358	+ 9.5
Dist. 5—East Central	564	1,301	1,199	— 7.8	18.8	43.4	39.9	3,519	7,053	6,780	— 3.9
Dist. 6—Northeast	12,488	12,990	13,503	+ 3.9	416.3	433.0	450.1	74,741	79,771	78,540	— 1.5
Dist. 7-B—North Central	798	988	1,185	+ 19.9	26.6	32.9	39.5	4,719	5,766	6,670	+ 15.7
Dist. 7-C—West Central	525	853	1,170	+ 37.2	17.5	28.4	39.0	3,127	4,837	6,241	+ 29.0
Dist. 8—West	7,141	17,000	16,822	— 1.0	238.0	566.7	560.7	39,482	87,376	90,015	+ 3.0
Dist. 9—North	3,186	3,794	4,245	+ 11.9	106.2	126.6	141.5	18,905	22,271	23,809	+ 6.9
Dist. 10—Panhandle	2,290	2,465	2,633	+ 6.8	76.3	82.2	87.8	12,974	15,333	15,341	+ 0.1
Utah	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....
Virginia	.....	.....	6	.....	.....	.....	.2	.....	.....	43	.....
West Virginia	280	259	226	— 12.7	9.4	8.6	7.5	1,681	1,503	1,297	— 13.7
Wyoming	2,482	3,220	3,617	+ 12.3	82.8	107.4	120.6	14,709	18,705	20,668	+ 10.5
Total U.S.	114,854	146,890	153,029	+ 4.2	3,828.5	4,896.4	5,101.0	666,098	847,752	889,201	+ 4.9

* Texas data by districts for 1941 and 1946 based on Texas Railroad Commission and 1947 on API, and therefore do not agree exactly with State totals, which are on Bureau of Mines basis.

Middle of Year

ALTHOUGH another article in this issue presents revised forecasts of demand for petroleum in 1947 as a whole, actual results for the first half of the year already are known and are herewith recorded.

While indicated demand was phenomenally high in the first quarter of 1947, the gain over 1946 was smaller in April and still smaller in May and June.

This leveling out of demand now is accentuated by difficulties in supplying certain products in certain areas, and it is indicated that the increase in consumption for the year as a whole will be substantially less than in the early months and perhaps not greatly above original forecasts.

and 7.8 percent more than in the initial half of 1945, while exceeding 1941's first half demand by 35.5 percent.

Although all of the principal petroleum products have been in greater demand this year than last, the increase in total demand over 1945's first half occurred in spite of the fact that neither motor fuel nor residual fuel oil quite equaled the record demand of the first six months of 1945. The net gain over 1945 for all products reflected the material increases shown by kerosine, distillate fuel oil, and lubricants, which established new all-time records. For 1947 as a whole, motor fuel and residual fuel oil also are due to show gains over 1945, as they declined in usage after the war ended in 1945.

In order to meet the record-breaking total demand for all oils in the first half of this year, all available sources of supply were drawn upon as heavily as possible. Domestic production of crude set a new record of 4,913,000 barrels daily, up 5.4 percent over the 4,684,000 daily in the like period last year and more than the 4,806,000 daily in the first half of 1945. Domestic production of natural gasoline and other petroleum liquids also set a new record of 356,000 barrels per day, compared with 316,000 in 1946 and 318,000 in 1945. Stocks of all oils were drawn upon at the rate of 58,000 barrels daily, as reductions in fuel oil inventories outweighed an increase in crude stocks. Despite the record domestic production and drawing on stocks, imports were required at increased rates. Total imports averaged 469,000 barrels daily in the first half of 1947, it is indicated by actual data for four months and estimates for May and June. This compares with imports of 361,000 barrels daily in the like period last year and 298,000 daily in 1945. Crude imports are placed at 272,000 barrels daily this year and receipts of refined products, mostly residual fuel oil, at 197,000 daily.

Stocks of all oils on June 30, 1947,

Stocks of Crude Petroleum in U. S. by Grades, at End of June

(Based on Weekly Reports of U. S. Bureau of Mines)

(THOUSANDS OF BARRELS)

Grade or Origin	June 28, 1941	June 29, 1946	June 28, 1947	Change 1941-1947
Pennsylvania Grade	4,297	2,493	2,354	— 1,943
Other Appalachian	1,42[illegible]	1,539	1,476	+ 56
Lima-Michigan	1,02[illegible]	1,064	1,026	+ 6
Illinois-Indiana	20,246	17,747	11,444	— 8,802
Arkansas	2,745	2,649	2,874	+ 129
Kansas	8,755	8,746	8,374	— 381
Louisiana	12,439	10,824	12,017	— 422
Northern	4,424	2,751	3,280	— 1,144
Gulf Coast	8,015	8,073	8,737	+ 722
Mississippi	1,5[illegible]7	2,161	3,012	+ 1,505
New Mexico	7,2[illegible]3	5,936	6,[illegible]71	— 1,132
Oklahoma	57,15[illegible]	33,825	28,730	— 28,428
Texas	88,991	104,6[illegible]5	120,028	+ 31,037
East Texas	22,698	16,953	20,288	— 2,410
West Texas	16,557	36,[illegible]34	40,6[illegible]6	+ 24,109
Gulf Coast	25,536	27,9[illegible]2	33,432	+ 7,836
Other Texas	24,14[illegible]	23,[illegible]86	25,[illegible]42	+ 1,502
Panhandle	.....	4,326	4,665	+ 4,665
North	.....	6,338	6,420	+ 6,420
South	.....	5,210	5,[illegible]81	+ 5,681
Other	.....	7,812	8,[illegible]76	+ 8,876
Rocky Mountain	15,[illegible]28	8,381	9,94[illegible]	— 5,983
California	35,125	20,478	24,654	— 10,471
Foreign	2,[illegible]65	3,435	4,216	+ 1,651
Total Gasoline Bearing in U.S.	259,399	223,8[illegible]3	236 221	— 23,178
Heavy in California	10,71[illegible]	5,004	5,445	— 5,271
Total in U.S.	270,115	228,887	241,666	— 28,449

U. S. Crude Runs to Stills and Percent of Refinery Capacity Used, by Districts, June and First 6 Months 1941, 1946, 1947

Runs from Bureau of Mines, except May and June, 1947, from American Petroleum Institute. Capacities from American Petroleum Institute.

(THOUSANDS OF BARRELS)

REFINING DISTRICT	CRUDE RUNS IN JUNE: Total Amount Run				CRUDE RUNS IN JUNE: Daily Average Run			REFINING CAPACITY IN USE, JUNE: Daily Capacity			REFINING CAPACITY IN USE, JUNE: Percent Capacity Used			TOTAL AMOUNT OF CRUDE RUN TO STILLS, FIRST 6 MONTHS			
	June, 1941	June, 1946	June, 1947	% Diff. '46-'47	June, 1941	June, 1946	June, 1947	June, 1941	June, 1946	June, 1947	June, 1941	June, 1946	June, 1947	Jan.-June, 1941	Jan.-June, 1946	Jan.-June, 1947	% Diff. '46-'47
East Coast	16,955	22,858	26,357	+15.3	565	762	879	643	839	816	87.9	90.8	107.7	101,988	138,075	144,015	+ 4.3
Appalachian	4,491	4,457	4,997	+12.1	15[illegible]	149	167	156	205	195	96.2	72.7	85.6	25,924	27,042	30,053	+ 9.7
District No. 1	.....	2,745	2,83[illegible]	+ 3.1	.....	92	95	.....	143	13[illegible]	.....	64.3	73.1	.....	17,223	17,86[illegible]	+ 3.7
District No. 2	.....	1,712	2,167	+26.6	.....	57	72	.....	62	65	.....	91.9	110.8	.....	10,179	12,193	+19.8
Indiana, Illinois, Kentucky	21,225	23,093	24,455	+ 5.9	707	77[illegible]	815	743	87[illegible]	922	95.2	88.5	88.4	118,707	134,757	144,237	+ 7.0
Oklahoma, Kansas, Missouri	10,831	11,84[illegible]	12,522	+ 5.8	361	395	417	42[illegible]	469	454	86.[illegible]	84.2	91.9	60,578	68,190	72,474	+ 6.3
Texas Inland	5,551	6,742	6,917	+ 2.6	185	225	231	28[illegible]	33[illegible]	296	66.1	68.2	78.[illegible]	32,102	38,033	39,198	+ 3.1
Texas Gulf Coast	28,482	36,402	35,256	— 3.1	950	1,213	1,175	1,071	1,226	1,328	88.7	98.9	88.5	171,374	209,404	199,820	— 4.6
Louisiana Gulf Coast	4,448	10,278	12,113	+17.9	148	342	404	164	321	357	90.2	106.5	113.2	24,859	57,546	66,108	+14.9
North Louisiana and Arkansas	2,124	1,833	2,049	+ 5.1	71	61	68	101	126	114	70.3	48.4	59.6	13,524	10,652	11,362	+ 6.7
Rocky Mountain	2,924	4,218	4,299	+ 9.9	97	141	143	121	178	187	8.02	79.2	76.5	15,805	23,325	24,751	+ 6.1
District No. 3	.....	331	272	—17.8	.....	11	9	.....	13	13	.....	84.6	69.2	.....	2,006	1,696	—15.5
District No. 4	.....	3,887	4,027	+ 3.6	.....	13[illegible]	134	.....	165	174	.....	78.8	77.[illegible]	.....	21,319	23,055	+ 8.1
California	18,904	23,348	24,60[illegible]	+ 5.4	63[illegible]	778	820	836	994	944	75.3	78.3	86.9	103,802	141,04[illegible]	146,916	+ 4.2
Total United States	115,935	145,069	153,567	+ 5.9	3,865	4,83[illegible]	5,119	4,535	5,558	5,615	85.2	87.[illegible]	91.2	668,663	848,424	878,934	+ 3.6

Refinery Production of Major Products and Percent Yield from Crude Run at U. S. Refineries

Results in June and first 6 months, 1947, compared with those in like periods last year and in 1941, last prewar year for U. S. All data from U. S. Bureau of Mines except May and June, 1947, estimated with aid of A.P.I. weekly bulletins.

(THOUSANDS OF BARRELS)

ITEM	1941	1946	1947	% Diff. '41-'47	% Diff. '46-'47
*GASOLINE:					
Production, June	55,136	61,645	67,388	+ 22.2	+ 9.3
(Daily Average)	1,838	2,055	2,246	+ 22.2	+ 9.3
Percent Yield from Crude	44.5	39.1	40.4	.....	.....
Production, Jan.-June	313,297	353,406	380,439	+ 21.4	+ 7.6
(Daily Average)	1,731	1,953	2,102	+ 21.4	+ 7.6
KEROSINE:					
Production, June	5,218	8,376	8,977	+ 72.0	+ 7.2
(Daily Average)	174	279	299	+ 72.0	+ 7.2
Percent Yield from Crude	4.5	5.8	5.8	.....	.....
Production, Jan.-June	35,901	54,705	54,851	+ 52.8	+ 0.3
(Daily Average)	198	302	303	+ 52.8	+ 0.3
DISTILLATE FUEL OIL:					
Production, June	14,697	23,320	24,415	+ 66.1	+ 4.7
(Daily Average)	490	777	814	+ 66.1	+ 4.7
Percent Yield from Crude	12.7	16.1	15.9	.....	.....
Production, Jan.-June	92,072	142,584	143,489	+ 55.8	+ 0.6
(Daily Average)	509	788	793	+ 55.8	+ 0.6
RESIDUAL FUEL OIL:					
Production, June	27,882	36,569	37,258	+ 33.6	+ 1.9
(Daily Average)	929	1,219	1,242	+ 33.6	+ 1.9
Percent Yield from Crude	24.0	25.2	24.3	.....	.....
Production, Jan.-June	164,125	222,121	217,353	+ 32.4	— 2.1
(Daily Average)	907	1,227	1,201	+ 32.4	— 2.1
LUBRICANTS:					
Production, June	3,520	3,839	4,607	+ 30.9	+ 20.0
(Daily Average)	117	128	154	+ 30.9	+ 20.0
Percent Yield from Crude	3.0	2.6	3.0	.....	.....
Production, Jan.-June	18,333	21,594	26,049	+ 42.1	+ 20.6
(Daily Average)	101	119	144	+ 42.1	+ 20.6

* Production includes straight run, cracked, and natural blended at refineries. Yield indicates percent of crude runs made into straight run and cracked gasoline.

totaled approximately 496,631,000 barrels. That was more than the 479,955,000 barrels held at midyear 1946 but represented only 86 days' supply at this year's rate of demand, whereas the stocks of a year ago were equivalent to 91 days' supply. At the middle of 1941 stocks of all oils amounted to 551,870,000 barrels and represented 131 days' supply.

Demand Leveling Out

The indicated increase of 10 percent in total demand for all oils for the first half of 1947 compared with the like period of 1946 is less than the gain shown at the end of the first quarter. This development supports the views lately expressed that 1947 as a whole will show substantially less gain over 1946 than indicated by the extraordinarily high demand of the first quarter. Some petroleum economists are of the opinion that 1947 demand may not be very much greater than original estimates—that the year's increase may not be much over 6 percent.

In the first quarter of 1947 the total demand for all oils was 12.6 percent greater than that in the like period of 1946. But April, 1947, showed an increase of only 9.7 percent over April, 1946, and this brought the gain for the first four months down to 11.9 percent in comparison with last year. On the basis of the partly estimated data for May and June, the increase over 1946 was brought down to 10 percent for the first six months, as previously stated. This indicates that for May and June the increase in demand over last year was down to 6.2 percent. Furthermore, for July and succeeding months, this year, actual consumption will be tempered by the difficulties which have been encountered in supplying the potential demand. So far, the most important scarcity has been that which has made necessary the allocation of supplies of gasoline to dealers in the Middle West, but later in the year, there may be similar scarcity of fuel oils, also mainly affecting the Mid-West.

In considering the phenomenally great indicated demand for petroleum products in the first quarter of this year, some observers have concluded that such indicated demand was artificially high; that it included not only actual consumption but also substantial drafts on primary storage for accumulation of supplies in secondary storage beyond the refineries and bulk terminals. Such accumulations are believed to have occurred because of the threats of scarcities and of higher prices but would have been indicated as actual consumption in the official statistics of the industry, which do not attempt to keep track of oils after they go beyond the refineries and bulk terminals. In the remainder of this year such a distortion of the true trend of demand will not be so likely because of the tightened supply situation.

Motor Fuel Use Rising

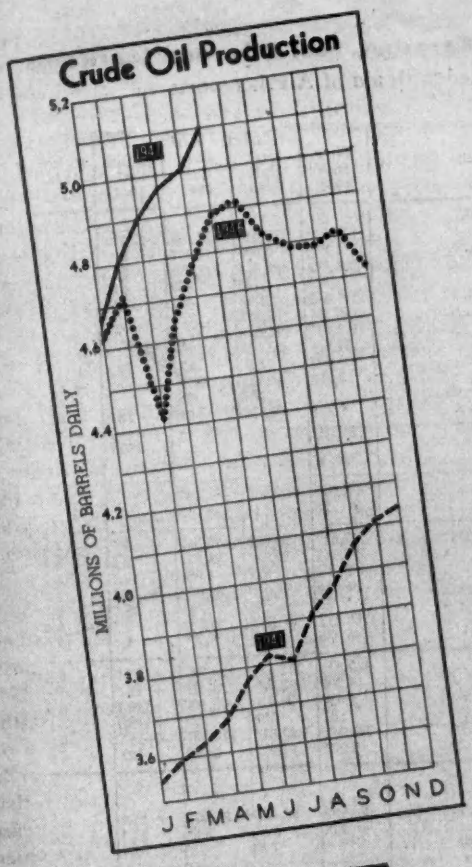
Demand for petroleum has consistently increased during the war and postwar periods, and in the first half of 1947 it was 38.1 percent greater than in the like period of 1941, having increased on the average about 6 percent per year in spite of the abnormal conditions that prevailed. This average annual increase was about as much as might have been expected in peacetime. Furthermore, it would have been even larger if the wartime circumstances had not prevented as much increase in gasoline consumption as would have occurred under more favorable conditions. As compared with the 38.1 percent gain over 1941 shown by the demand for all oils, the demand for motor fuel in 1947 has been only 22 percent above 1941, indicating an average annual increase of only about 3½ percent. This relatively small gain in motor fuel demand reflects the long interruption of production of motor vehicles for

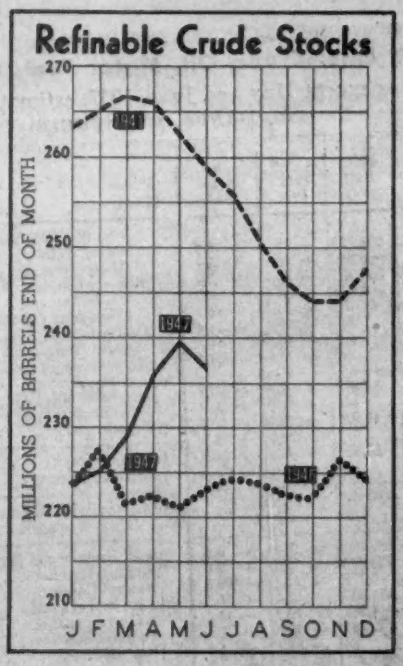
Stocks of Major Petroleum Products Held By Refining Companies in the United States At End of June, Compared with 1941 and 1946

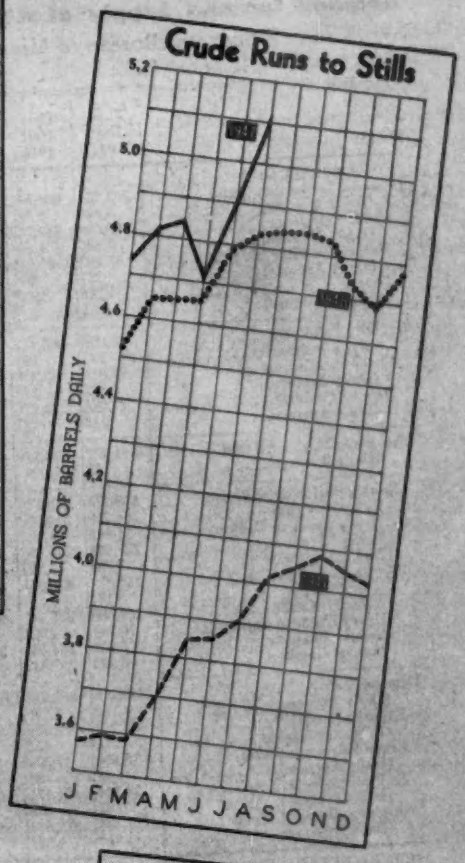
Stocks at refineries, at bulk terminals, in transit, and in pipe lines. Data from Bureau of Mines except May and June, 1947, from weekly reports of American Petroleum Institute

(THOUSANDS OF BARRELS)

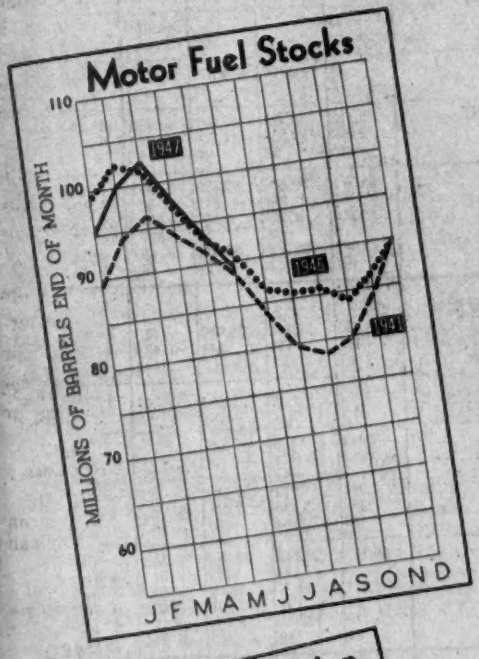
DISTRICT	FINISHED AND UNFINISHED GASOLINE Stocks End of June			KEROSINE Stocks End of June			GASOIL AND DISTILLATE FUEL Stocks End of June			RESIDUAL FUEL OIL Stocks End of June		
	1941	1946	1947	1941	1946	1947	1941	1946	1947	1941	1947	1947
East Coast	22,698	22,530	20,459	1,304	5,742	6,409	10,868	11,943	11,864	7,761	8,176	8,475
Appalachian	3,292	3,544	3,363	166	387	397	376	583	574	539	406	374
District No. 1	.....	2,519	2,298	.....	320	283	.....	445	428	.....	249	253
District No. 2	.....	1,025	1,065	.....	67	114	.....	138	146	.....	157	121
Indiana, Illinois, Kentucky	17,786	18,475	16,416	1,212	2,186	1,621	3,774	5,667	4,272	3,568	3,879	3,011
Oklahoma, Kansas, Missouri	7,595	7,901	8,325	560	932	692	1,397	2,308	1,745	2,066	1,411	1,108
Texas Inland	2,809	2,684	3,456	231	363	321	279	403	410	1,566	724	715
Texas Gulf Coast	13,508	14,650	14,384	3,768	2,316	2,286	8,742	6,270	7,003	8,171	4,910	5,499
Louisiana Gulf Coast	3,351	3,971	4,318	881	1,256	1,615	1,539	2,142	2,187	1,294	1,467	1,473
North Louisiana and Arkansas	710	1,519	1,638	242	241	286	245	345	460	388	132	127
Rocky Mountain	2,036	2,001	3,109	103	185	119	296	617	693	640	705	707
District No. 3	.....	91	91	.....	15	10	.....	55	40	.....	32	34
District No. 4	.....	1,910	3,018	.....	170	109	.....	562	653	.....	673	673
California	16,057	14,696	15,729	1,142	710	762	10,853	8,546	12,879	55,024	19,682	21,837
Total United States	89,842	91,971	91,197	9,609	14,318	14,508	38,369	38,824	42,087	81,017	41,492	43,321

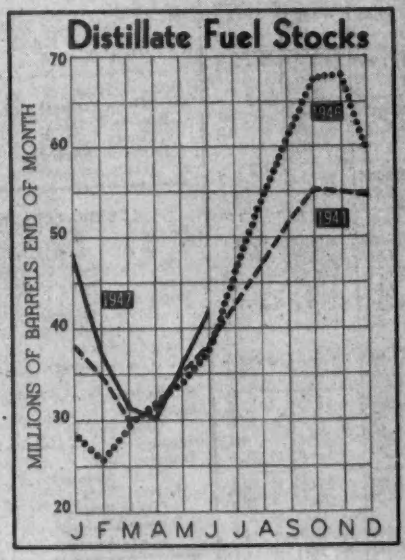


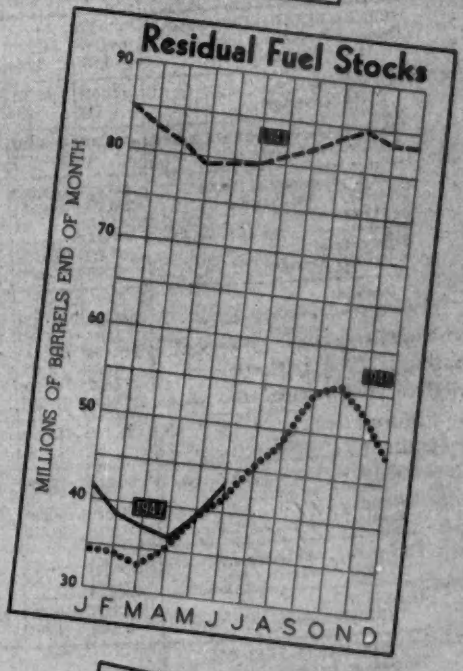


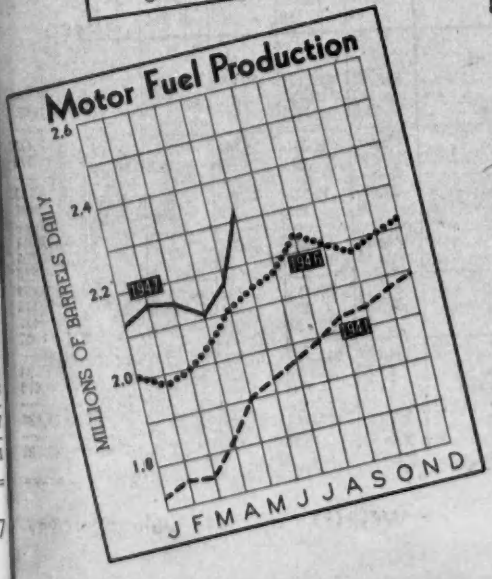


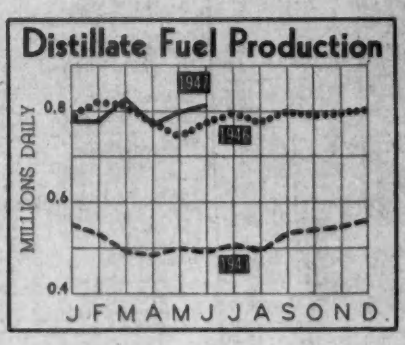
Monthly TRENDS

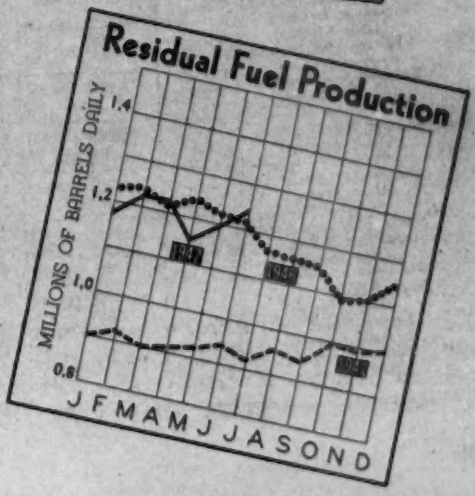












SIDUAL
EL OIL
ks End of
June

1947	1947
8,176	8,475
406	374
249	253
157	121
3,879	3,011
1,411	1,103
724	715
4,910	5,499
1,467	1,473
132	127
705	707
32	34
673	673
19,682	21,837
41,492	43,321

Demand for and Supply of All Oils, Crude Oil, Motor Fuel, Kerosine, Fuel Oils, and Lubricants

Sources: Bureau of Mines except May and June, 1947, estimated with aid of A.P.I. reports

(THOUSANDS OF BARRELS)

ITEM	First Half 1941	First Half 1946	First Half 1947	% Diff. 1941-1947	% Diff. 1946-1947
ALL OILS					
Domestic Production, Total	705,237	904,941	953,722	+ 35.2	+ 5.4
(Daily Average)	3,896	5,000	5,269	+ 35.2	+ 5.4
Crude Petroleum	666,098	847,752	889,201	+ 33.5	+ 4.9
(Daily Average)	3,620	4,684	4,913	+ 33.5	+ 4.9
Natural Gasoline	37,403	56,019	64,101	+ 71.4	+ 14.4
(Daily Average)	207	310	354	+ 71.4	+ 14.4
Benzol	1,736	1,170	420	— 75.8	— 64.1
(Daily Average)	9	6	2	— 75.8	— 64.1
Imports, Total	43,059	65,348	84,835	+ 97.0	+ 29.8
(Daily Average)	237	361	469	+ 97.0	+ 29.8
Crude Petroleum	22,014	42,370	49,250	+123.7	+ 16.2
(Daily Average)	122	234	272	+123.7	+ 16.2
Refined Products	21,045	22,978	35,585	+ 69.1	+ 54.9
(Daily Average)	116	127	197	+ 69.1	+ 54.9
Charges in Stocks, All Oils	—11,407	+16,376	—10,463	.....	.....
(Daily Average)	— 63	+ 91	— 58	.....	.....
Stocks, Beginning of Period	563,277	463,579	507,094	— 10.0	+ 9.4
Refinable Crude	264,709	218,763	224,473	— 15.2	+ 2.6
Heavy Crude in California	11,906	4,496	5,703	— 52.1	+ 26.8
Refined Products	280,958	235,998	271,937	— 3.2	+ 15.2
Natural Gasoline	5,704	4,322	4,981	— 12.7	+ 15.2
Stocks, End of Period	551,870	479,955	496,631	— 10.0	+ 3.5
(Days' Supply)	131	91	86	— 34.4	— 5.5
Refinable Crude	259,695	223,140	236,221	— 9.0	+ 5.9
Heavy Crude in California	10,711	4,921	5,445	— 49.2	+ 10.6
Refined Products	275,229	224,551	249,065	— 9.5	+ 1.8
Natural Gasoline	6,235	7,343	5,900	— 5.4	— 19.7
Demand, Total	759,703	953,913	1,049,020	+ 38.1	+ 10.0
(Daily Average)	4,197	5,270	5,796	+ 38.1	+ 10.0
Exports, Total	46,110	78,329	82,100	+ 78.1	+ 4.8
(Daily Average)	255	433	454	+ 78.1	+ 4.8
Crude Petroleum, Total	15,896	17,204	19,700	+ 23.9	+ 14.5
(Daily Average)	88	95	109	+ 23.9	+ 14.5
Refined Products, Total	30,214	61,125	62,400	+106.5	+ 2.1
(Daily Average)	167	338	345	+106.5	+ 2.1
Domestic Demand, Total	713,593	875,584	966,920	+ 35.5	+ 10.4
(Daily Average)	3,943	4,837	5,342	+ 35.5	+ 10.4
CRUDE PETROLEUM—Supply:					
Domestic Production, Total	666,098	847,752	889,201	+ 33.5	+ 4.9
(Daily Average)	3,680	4,684	4,913	+ 33.5	+ 4.9
Imports, Total	22,014	42,370	49,250	+123.7	+ 16.2
(Daily Average)	122	234	272	+123.7	+ 16.2
Change in Stocks (incl. Calif. heavy)	— 6,209	+ 4,802	+11,490	.....	.....
(Daily Average)	— 34	+ 27	+ 63	.....	.....
Stocks, Beginning of Period	276,615	223,259	230,170	— 16.8	+ 3.1
Stocks, End of Period	270,406	228,061	241,666	— 10.6	+ 6.0
(Days' Supply)	70	47	47	— 32.9	.....
Supply, Total	694,321	885,320	926,961	+ 33.5	+ 4.7
(Daily Average)	3,836	4,891	5,121	+ 33.5	+ 4.7
Demand:					
Runs to Stills, Total	668,663	848,424	878,934	+ 31.4	+ 3.6
(Daily Average)	3,694	4,687	4,856	+ 31.4	+ 3.6
Domestic Crude	646,056	807,240	829,734	+ 28.4	+ 2.8
(Daily Average)	3,569	4,460	4,584	+ 28.4	+ 2.8
Foreign Crude	22,607	41,184	49,200	+117.6	+ 19.5
(Daily Average)	125	227	272	+117.6	+ 19.5
Exports, Total	15,896	17,204	19,700	+ 23.9	+ 14.5
(Daily Average)	88	95	109	+ 23.9	+ 14.5
Transfers to Fuel Oil Stocks	6,022	12,159	14,890	+147.3	+ 22.5
(Daily Average)	33	67	82	+147.3	+ 22.5
Distillate Fuel Oil	1,220	1,580	1,510	+ 23.8	— 4.4
Residual Fuel Oil	4,802	10,579	13,380	+178.6	+ 26.5
Used as Fuel, and Losses	3,740	7,533	13,437	+259.3	+ 78.4
(Daily Average)	21	42	74	+259.3	+ 78.4
Demand, Total	694,321	885,320	926,961	+ 33.5	+ 4.7
(Daily Average)	3,836	4,891	5,121	+ 33.5	+ 4.7
DISTILLATE FUEL OIL					
Production, Total	92,072	142,584	143,489	+ 55.8	+ 0.6
(Daily Average)	509	788	793	+ 55.8	+ 0.6
Percent Yield from Crude	13.8	16.8	16.3	.....	.....
Transfers from Crude	1,220	1,580	1,510	+ 23.8	— 4.4
(Daily Average)	7	9	8	+ 23.8	— 4.4
Imports, Total	1,887	2,857	2,350	+ 24.5	— 17.7
(Daily Average)	10	16	13	+ 24.5	— 17.7
Change in Stocks	— 4,637	+ 3,046	—17,533	.....	.....
(Daily Average)	— 26	+ 17	— 97	.....	.....
Stocks, Beginning of Period	42,911	35,778	59,620	+ 38.9	+ 66.6
Stocks, End of Period	38,274	38,824	42,087	+ 10.0	+ 8.4
(Days' Supply)	69	49	46	— 33.3	— 6.1
Demand, Total	99,816	143,975	164,882	+ 65.2	+ 14.5
(Daily Average)	551	796	911	+ 65.2	+ 14.5
Exports, Total	6,826	18,147	16,200	+137.3	— 10.7
(Daily Average)	38	101	90	+137.3	— 10.7
Domestic Demand	92,990	125,828	148,682	+ 59.9	+ 18.2
(Daily Average)	514	695	821	+ 59.9	+ 18.2

ITEM	First Half 1941	First Half 1946	First Half 1947	% Diff. 1941-1947	% Diff. 1946-1947
MOTOR FUEL					
Production, Total	328,014	370,213	393,590	+ 20.0	+ 6.3
(Daily Average)	1,812	2,045	2,175	+ 20.0	+ 6.3
Refinery Gasoline, Total	291,968	325,008	348,108	+ 19.2	+ 7.1
(Daily Average)	1,613	1,796	1,922	+ 19.2	+ 7.1
(Yield from Crude)	43.7	38.2	39.7	.....	.....
Cracked	159,356	183,328	.....	.....	.....
Straight Run	132,612	141,678	.....	.....	.....
Natural Gasoline, etc.	37,403	56,019	64,101	+ 71.4	+ 14.4
(Daily Average)	207	310	354	+ 71.4	+ 14.4
Less Sales of L.P.G.	3,093	11,445	18,210	+488.7	+ 59.1
Less transfers cycle prods.	.....	537	829	.....	+ 54.4
Benzol	1,736	1,170	420	— 75.8	— 64.1
Imports, Total	1	.....	.....	—100.0	.....
(Daily Average)	.....	.....	.....	.....	.....
Change in Stocks	+4,999	—2,613	— 647	.....	.....
(Daily Average)	+ 28	— 14	— 3	.....	.....
Stocks, Beginning of Period	83,647	93,682	89,515	+ 7.0	— 4.4
Finished Gasoline	77,943	89,360	84,534	+ 8.5	— 5.4
Natural Gasoline	5,704	4,322	4,981	— 12.7	+ 15.2
Stocks, End of Period	88,646	91,069	88,868	+ 0.3	— 2.4
(Days' Supply)	50	44	41	— 18.0	— 6.8
Finished Gasoline	82,411	83,726	82,968	+ 0.7	— 0.9
Natural Gasoline	6,235	7,343	5,900	— 5.4	— 19.7
Demand, Total	323,016	372,826	394,237	+ 22.0	+ 5.7
(Daily Average)	1,785	2,060	2,178	+ 22.0	+ 5.7
Exports, Total	9,410	24,910	23,400	+148.7	— 6.1
(Daily Average)	52	138	129	+148.7	— 6.1
Domestic Demand	313,606	347,916	370,837	+ 18.2	+ 6.6
(Daily Average)	1,733	1,922	2,049	+ 182.	+ 6.6
KEROSINE					
Production, Total	35,901	54,705	54,851	+ 52.8	+ 0.3
(Daily Average)	198	302	303	+ 52.8	+ 0.3
Percent Yield from Crude	5.4	6.4	6.2	.....	.....
Imports, Total	43	.....	.....	—100.0	.....
(Daily Average)	.....	.....	.....	.....	.....
Change in Stocks	+ 97	+3,897	—2,572	.....	.....
(Daily Average)	+ 1	+ 21	— 14	.....	.....
Stocks, Beginning of Period	9,512	10,421	17,081	+ 79.6	+ 63.9
Stocks, End of Period	9,609	14,318	14,509	+ 51.0	+ 1.3
(Days' Supply)	49	51	46	— 6.1	— 9.8
Demand, Total	35,847	50,808	57,423	+ 60.2	+ 13.0
(Daily Average)	198	281	317	+ 60.2	+ 13.0
Exports, Total	802	4,500	5,350	+567.1	+ 18.9
(Daily Average)	4	25	29	+567.1	+ 18.9
Domestic Demand	35,045	46,308	52,073	+ 48.6	+ 12.4
(Daily Average)	194	256	288	+ 48.6	+ 12.4
LUBRICATING OILS					
Production, Total	18,333	21,594	26,049	+ 42.1	+ 20.6
(Daily Average)	101	119	144	+ 42.1	+ 20.6
Percent Yield from Crude	2.7	2.5	3.0	.....	.....
Imports, Total	.....	13	35	.....	+169.2
(Daily Average)	.....	.....	.....	.....	.....
Change in Stocks	—1,414	— 138	+ 186	.....	.....
(Daily Average)	— 8	— 1	+ 1	.....	.....
Stocks, Beginning of Period	8,767	7,773	7,564	— 13.7	— 2.7
Stocks, End of Period	7,353	7,635	7,750	+ 5.4	+ 1.5
(Days' Supply)	67	64	54	— 19.4	— 15.6
Demand, Total	19,747	21,745	25,898	+ 31.1	+ 19.1
(Daily Average)	109	120	143	+ 31.1	+ 19.1
Exports, Total	4,548	5,577	7,400	+ 62.7	+ 32.7
(Daily Average)	25	31	41	+ 62.7	+ 32.7
Domestic Demand	15,199	16,168	18,498	+ 21.7	+ 14.4
(Daily Average)	84	89	102	+ 21.7	+ 14.4
RESIDUAL FUEL OIL					
Production, Total	164,125	222,121	217,353	+ 32.4	— 2.1
(Daily Average)	907	1,227	1,201	+ 32.4	— 2.1
Percent Yield from Crude	24.5	26.2	24.7	.....	.....
Transfers from Crude	4,802	10,579	13,380	+178.6	+ 26.5
(Daily Average)	27	59	74	+178.6	+ 26.5
Imports, Total	17,021	19,175	31,550	+ 85.4	+ 64.5
(Daily Average)	94	106	174	+ 85.4	+ 64.5
Change in Stocks	—8,078	+4,334	—3,773	.....	.....
(Daily Average)	— 45	+ 24	— 21	.....	.....
Stocks, Beginning of Period	88,026	37,158	47,094	— 46.5	+ 26.7
Stocks, End of Period	79,948	41,492	43,321	— 45.8	+ 4.4
(Days' Supply)	74	30	29	— 60.8	— 3.3
Demand, Total	194,026	247,541	266,056	+ 37.1	+ 7.5
(Daily Average)	1,072	1,368	1,470	+ 37.1	+ 7.5
Exports, Total	6,773	4,474	5,400	— 20.3	+ 20.7
(Daily Average)	37	25	30	— 20.3	+ 20.7
Domestic Demand	187,253	243,067	260,656	+ 39.2	+ 7.2
(Daily Average)	1,035	1,343	1,440	+ 39.2	+ 7.2

civilian use and the arrested expansion in the number of such vehicles in use.

This year, however, has brought a relatively large production of motor vehicles, and motor fuel demand showed a 5.7 percent increase over 1946 at midyear. This happened even though exports were down, as domestic demand was up 6.6 percent. The year as a whole would have shown even larger gains in the absence of supply difficulties, as more new vehicles are being steadily produced, but consumption will be retarded at least to some extent by the scarcity. In the first half of 1947 total demand for motor fuel averaged 2,178,000 barrels daily, which was 5.7 percent more than the 2,060,000 daily of the like months of 1946 but somewhat less than the 2,216,000 daily of the first half of 1945, when military use was at a peak.

Residual Fuel Oil

The only other principal product used in smaller volume this year than in the record consumption period in the closing phases of the war was residual fuel oil. Total demand for that product averaged 1,470,000 barrels daily in this year's first half, up 7.5 percent over the 1,368,000 daily in the like period last year and 37.1 percent above 1941 but less than the 1,566,000 barrels daily recorded for the initial half of 1945. The continuing high consumption of residual fuel oil reflects the sustained high levels of industrial production of the nation, as this product is used especially by industrial plants, power plants, railroads, and ships. Supplying the demand is a problem, especially since refiners have reduced their yields of it in favor of lighter and more essential products. But the problem has been at least partly solved by importing more residual than formerly.

Distillate and Kerosine

The wonder product of the industry from the standpoint of demand is distillate fuel oil, which is wanted by the public in sharply expanding volume. Total demand for this product averaged about 911,000 barrels daily in the first half of 1947, a new all-time record and up 14.5 percent from a year previously. This demand was 65.2 percent above that in 1941, indicating an average annual increase of about 11 percent. Domestic use accounts for this year's increase in demand as exports are off somewhat. The growth in demand reflects the strong preference for oil burners in building new homes and also conversion of many older homes to oil-burning equipment.

Closely related to distillate fuel oil in its use, kerosine has shown a very similar trend of demand. Total demand for kerosine in the first half of this year averaged about 317,000 barrels daily, up 13 percent from last year and up 60.2 percent from 1941, with domestic consumption representing the predominant proportion of total demand, although exports also are greater than formerly.

Lubricating oils show strong demand this year, in line with increased use of motor vehicles and the continued high level of industrial production. Total demand is about 19 percent over last year, with exports as well as domestic use higher. This year's demand is breaking all previous records, being well above the wartime peak and about 31 percent above prewar.

Higher Demand Indicated

• CONTINUED FROM PAGE 55

primary storage points. In view of operating statistics following the first quarter, some economists began to think that petroleum products demand for the year as a whole might not be materially greater than originally expected.

In its June revision of its forecast for 1947, the Bureau of Mines calculated that for 1947 the total demand for all oils would average 5,733,000 barrels daily, an increase of 7.7 percent over the 5,321,000 daily recorded for 1946. This was the second time that the Bureau revised its forecast for 1947. The original forecast was made in December, 1946, and contemplated an increase of 4.3 percent in total demand for all oils in 1947. The first revised forecast was made in April, 1947, and estimated that the increase would be 6.2 percent. The second revised forecast, published in June, raised the estimated increased to 7.7 percent.

Original estimates of demand have been increased for all of the principal products, and the sharpest revisions have been those for distillate fuel oil and kerosine, now expected to show 1947 gains of 14.1 and 13.0 percent, respectively. The unprecedented demand for these heating oils reflects a very high percentage of oil burners installed as heating equipment in the new homes that are being constructed and also numerous installations in older homes, in getting away from coal. Similar trends are expected to continue into the future.

The latest forecast places motor fuel demand for this year 5.8 percent above last year, a materially larger gain than previously estimated. Accelerated production of automobiles, trucks, and busses partly accounts for the increased estimate, and another factor is the continued use of more older vehicles than expected. Non-automotive consumption is meeting or exceeding earlier expectations.

This year's demand for residual fuel oil now is estimated 5.1 percent above 1946. Originally, little if any gain was expected, mainly becauses it was doubted that supply in excess of 1946 would be available. Increased imports have provided additional supply, but the possibility remains that some of the potential demand will not be fulfilled. In this connection, the Bureau of Mines stated: "In order to supply adequate amounts of gasoline and heating oils, the yield of these products may have to be raised at the expense of heavy fuel oil. Normally, the increase in the price of residual fuel oil might result in conversions to coal if an adequate supply of that fuel was assured."

On the basis of demand as forecast in June, the Bureau of Mines calculated that the domestic production of crude oil and other liquid petroleum would be 4.2 percent greater in 1947 than 1946; that imports would be 30.4 percent higher; that these new supplies would permit a small increase in stocks; and that refinery runs of crude would be 3.8 percent above 1946.

The domestic production of crude was estimated at 4,920,000 barrels daily for 1947, up 3.6 percent, and output of natural gasoline and related oils at 362,000 daily, up 12.5 percent.

Imports Forecast

Imports were forecast at 482,000 barrels daily for the year, up 30.4 percent from the 370,000 daily of 1946. Crude imports were estimated at 282,000 daily, up 19.7 percent, and imports of residual fuel oil and miscellaneous other oils at 200,000 daily, an increase of 49.1 percent.

The forecast made no provision for any material net change in stocks of refined products during 1947 but allowed for a moderate increase in crude oil stocks. In 1946 there was a substantial increase in refined product stocks, but no material increase is indicated as possible this year.

In the forecast, crude runs to stills are estimated at 4,920,000 barrels daily as an average for 1947, an increase of 3.8 percent over the runs of 4,740,000 per day in 1946.

Taking into account refinery requirements, exports, use as fuel, and losses, and allowing for the requirements to be met in part by imports of crude, the forecast indicated a demand for domestic crude averaging 4,891,000 barrels daily in 1947, an increase of 3.3 percent over the 4,733,000 barrels daily required in 1946. To meet this demand and permit additions to crude stocks averaging 31,000 barrels daily for the year, the daily average domestic crude production of 4,920,000 barrels for 1947 was indicated, or an increase of 3.6 percent over the 4,749,000 barrels daily of 1946. That happens to be exactly the same as the estimated crude runs to stills. In 1946, also, domestic crude production almost coincided with refinery runs.

Show 5 Percent Gain

AT THE midpoint of his year the number of wells completed was almost 5 percent ahead of last year's six-month total. It is now indicated that the close of the year will show completions totaling approximately 32,000, unless the serious tubular supply situation becomes even tighter. An even greater stepup in the last half doesn't appear too unlikely in view of the fact that the new period is starting with almost 600 more rigs than were working a year before.

Total completions at the halfway mark numbered 14,880 for an increase of 4.8 percent over the 14,200 wells completed in the first six months of last year. Of this year's wells, 2381, or 16 percent, were exploratory ventures, while last year's included only 2105, or 14.8 percent.

So far this year drilling operations have been handicapped by shortages of drill pipe and casing, which have no doubt prevented some operators from fulfilling their budgets. Despite these hindrances more wells were completed in the period than in any like period since the last prewar year, 1941.

Well Completions in the United States During June, 1947, and Cumulative for Year

(Figures compiled from weekly reports of WORLD OIL Staff, with following exceptions: Illinois from Illinois Geological Survey; Indiana from Indiana Division of Geology; Missouri from Missouri Geological Survey; Tennessee from Tennessee Division of Geology; Bradford, Kane-Clarendon, and Allegany fields of Pennsylvania and New York from The Producers' Monthly.)

STATE OR DISTRICT	MONTHLY COMPLETIONS, JUNE, 1947									Total Completions				CUMULATIVE TOTAL January-June				Rigs in Operation (Drilling, Rigging Up and Shut Down)		
	New Wells								Total Drilled Deeper											
	Oil	Dist.	Gas	Dry	Water Input	Gas Input	Water Disposal	Total New		June, 1947	May, 1947	June, 1946	Footage June, 1947	Wells 1947	Wells 1946	Percent Diff.	Footage, 1947	June 30, 1947	May 31, 1947	June 30, 1946
Alabama	1			1				2		2	1	1	6,687	9	8	+ 12.5	34,233	7	6	4
Arizona															1	—100.0		2	2	
Arkansas	11		1	7				19		19	30	19	99,214	120	90	+ 33.3	514,735	40	34	23
California	109		5	31				145	2	147	154	160	637,549	934	944	— 1.1	3,895,278	266	267	277
Colorado	10			6				16		16	16	16	79,846	79	64	+ 23.4	426,081	62	47	58
Florida				4				4		4	3	3	15,864	17	11	+ 54.5	88,288	6	6	8
Georgia														1	2	— 50.0	3,847	2	1	
Illinois	84		2	72				158	5	163	148	239	365,774	898	1,077	— 16.6	2,242,971	229	215	278
Indiana	13			18				31		31	41	44	58,518	223	210	+ 6.2	411,822	70	64	96
Iowa																				1
Kansas	97		23	65			1	186	4	190	177	175	601,660	1,121	1,016	+ 10.3	3,508,552	297	304	253
Kentucky	13		18	17				48	1	49	77	60	95,748	347	376	— 7.7	626,071	127	123	115
Louisiana	58	5	9	42	1	1		116		116	114	93	699,063	623	629	— 1.0	3,749,975	190	169	160
North Louisiana	26	2	6	27	1			62		62	63	55	207,287	326	335	— 2.7	1,095,385	67	40	61
South Louisiana	32	3	3	15		1		54		54	51	38	491,776	297	294	+ 1.0	2,654,590	123	129	99
Michigan	45		3	21				69		69	67	68	154,543	278	371	— 25.1	643,713	110	105	114
Mississippi	33		1	20				54		54	56	25	423,679	213	118	+ 80.5	1,808,616	91	99	32
Missouri	1			2				3		3	4	2	1,092	26	13	+100.0	12,421	4	4	8
Montana	15		2	6				23		23	19	28	55,140	73	121	— 39.7	175,597	64	64	44
Nebraska																		6	6	4
New Mexico	36		3	8				47	5	52	54	35	210,479	288	201	+ 43.3	1,187,930	126	122	96
New York	96		1		61			158		[5]158	[5]150	110	220,377	[5]796	546	[5]+ 45.8	1,129,737	[5]196	[5]180	135
North Carolina														1			6,370			
Ohio	22		51	34				107	3	110	112	118	323,673	629	592	+ 6.3	1,819,043	244	232	226
Oklahoma	178		10	133		4		325	12	337	257	192	987,618	1,791	1,238	+ 44.7	5,348,375	503	514	473
Oregon				1				1		1		1	8,500	1	2	— 50.0	8,500		1	
Pennsylvania	102		45	22	86	24		279	1	[5]280	[5]276	367	476,688	[5]1,608	2,116	[5]— 24.0	2,788,933	[5]396	[5]361	402
South Dakota																				3
Tennessee				1				1		1			606	9	2	+350.0	7,192	7	5	5
Texas	506	7	32	250				795	20	815	707	672	3,442,514	4,310	4,010	+ 7.5	18,653,723	1,277	1,218	978
Dist. 1—S. Central	8		1	12				21		21	23	11	69,587	148	70	+111.4	538,269	34	30	31
Dist. 2—Middle Gulf	25	2	8	17				52		52	45	[1]	342,496	300	[1]	[1]	1,848,461	58	61	[1]
Dist. 3—Upper Gulf	26	2	1	20				49		49	69	46	317,306	375	335	+ 11.9	2,421,742	98	98	65
Dist. 4—L. Gulf-S.W.	57	3	6	34				100	1	101	97	135	500,567	543	750	+ 12.4	2,910,628	109	107	113
Dist. 5—E. Central	9		4	6				19		19	8	[2]	114,548	63	[2]	[2]	336,166	32	16	[2]
Dist. 6—Northeast	31		3	5				39	1	40	33	57	194,407	225	346	— 16.8	1,135,407	68	69	103
Dist. 7-B—N. Central	31		1	43				75	1	76	60	[3]	237,710	388	[3]	[3]	1,207,877	131	122	[3]
Dist. 7-C—W. Central	21			6				27	2	29	23	[4]	94,466	120	[4]	[4]	404,573	73	67	[4]
Dist. 8—West	161			22				183	8	191	161	139	935,786	925	820	+ 27.4	4,469,399	386	364	358
Dist. 9—North	115			77				192	5	197	151	259	481,496	997	1,489	— 7.0	2,612,448	172	168	240
Dist. 10—Panhandle	22		8	8				38	2	40	37	25	154,145	226	200	+ 13.0	768,753	116	116	68
Utah											1			3	2	+ 50.0	14,143	7	4	9
Washington															1	—100.0		1	1	
West Virginia	7		56	7				70	6	76	51	61	188,888	388	362	+ 7.2	1,059,357	375	369	366
Wyoming	7			3				10	1	11	18	13	48,075	94	77	+ 22.1	449,942	97	80	59
Total United States	1,444	12	262	771	148	29	1	2,667	60	2,727	2,533	2,502	9,192,794	14,880	14,200	+ 4.8	50,615,445	4,802	4,603	4,227

[1] Dist. 2 included with Dist. 4. [2] Dist. 5 included with Dist. 6. [3] Dist. 7-B included with Dist. 9. [4] Dist. 7-C included with Dist. 8. [5] Part of Bradford field now included in New York; formerly, all was carried in Pennsylvania.

Greater Depths Curb Completions

THIS year is bringing a continuation of the necessity of drilling deeper in order to develop new oil producing potential. New wells completed in the first half of 1947 averaged 3464 feet in depth. This was a substantial increase over the average depth of 3331 feet recorded for the new wells completed in the year 1946. It almost equaled the all time record average depth of 3489 feet per well recorded in 1945.

Since supplies of casing, tubing, and other drilling equipment have been seriously scarce this year, the comparatively great average drilling depth has acted as a brake upon the number of wells that could be completed. Thus the number of new well completions was held to an increase of only 4.5 percent for the first half of 1947, compared with the like period of 1946, although the footage involved in this year's new well completions showed an increase of 7.8 percent.

In reflection of the current relatively deep drilling on the average, the amount of footage likely to be drilled in 1947 should be the greatest in the history of the industry with the exception of 1937, when an all time drilling record was established. In that year 35,045 new wells were completed and 104,733,341 feet of hole were drilled.

Combined Footage and Average Depths Drilled in New Wells Completed in U. S.

YEAR	Wells	Footage	Average Depth
1934	21,122	56,141,433	2658
1935	24,581	67,844,939	2760
1936	28,962	80,996,816	2797
1937	35,045	104,733,341	2989
1938	29,127	90,585,158	3110
1939	28,012	85,523,094	3053
1940	31,149	96,182,605	3088
1941	32,510	99,347,714	3056
1942	21,990	67,903,053	3088
1943	20,349	61,991,857	3046
1944	25,786	84,378,457	3272
1945	26,649	92,982,113	3489
1946	30,333	101,025,789	3331
First Half:			
1946	13,920	46,759,943	3359
1947	14,546	50,388,619	3464

Wells, Footage and Average Depths Drilled in U. S., by States and Districts, First Half of Year 1946-1947

	NEW WELLS						OLD WELLS DEEPENED					
	Wells		Footage		Average Depth		Wells		Footage		Average Depth	
STATE OR DISTRICT	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
Alabama	8	9	32,307	34,233	4,038	3,804	....	....	.....	.....	....	....
Arizona	1	....	4,300	.....	4,300	.....	....	....	.....	.....	....	....
Arkansas	89	119	339,802	514,631	3,818	4,325	1	1	75	104	75	104
California	908	909	3,880,325	3,867,423	4,273	4,255	36	25	43,938	27,855	1,221	1,114
Colorado	64	79	414,027	426,081	6,469	5,393	....	....	.....	.....	....	....
Florida	11	17	77,912	88,288	7,083	5,193	....	....	.....	.....	....	....
Georgia	2	1	8,441	3,847	4,221	3,847	....	....	.....	.....	....	....
Illinois	1,060	886	2,646,788	2,237,232	2,497	2,525	17	12	4,442	5,739	261	478
Indiana	206	222	357,833	411,809	1,737	1,855	4	1	3,323	13	831	13
Kansas	971	1,080	3,204,031	3,498,203	3,300	3,239	45	41	7,803	10,349	173	252
Kentucky	372	344	687,217	625,011	1,847	1,817	4	3	692	1,060	173	353
Louisiana	627	617	4,185,399	3,735,821	6,675	6,055	2	6	3,405	14,154	1,702	2,359
North Louisiana	334	323	1,529,687	1,083,001	4,580	3,353	1	3	1,455	12,384	1,455	4,128
South Louisiana	293	294	2,655,712	2,652,820	9,064	9,023	1	3	1,950	1,770	1,950	590
Michigan	367	278	880,717	643,713	2,400	2,316	4	....	3,127	.....	782	....
Mississippi	115	213	843,993	1,808,616	7,339	8,491	3	....	921	.....	307	....
Missouri	13	26	11,221	12,421	863	478	....	....	.....	.....	....	....
Montana	117	73	270,029	175,597	2,308	2,405	4	....	824	.....	206	....
New Mexico	195	260	703,328	1,137,630	3,607	4,376	6	28	6,493	50,300	1,082	1,796
New York	[5]545	796	[5]768,420	1,129,737	1,500	1,419	1	....	3	.....	3	....
North Carolina	....	1	.....	6,370	....	6,370	....	....	.....	.....	....	....
Ohio	591	617	1,466,163	1,806,853	2,481	2,928	1	12	1,651	12,190	1,651	1,016
Oklahoma	1,188	1,734	4,159,904	5,327,257	3,501	3,072	50	57	17,674	21,118	353	370
Oregon	2	1	17,148	8,500	8,574	8,500	....	....	.....	.....	....	....
Pennsylvania	[5]2,103	1,595	[5]3,565,036	2,775,165	1,695	1,740	13	13	16,074	13,768	1,236	1,059
Tennessee	2	9	1,618	7,192	804	799	....	....	.....	.....	....	....
Texas	3,926	4,194	16,906,757	18,589,021	4,295	4,432	74	116	39,181	64,702	529	558
Dist. 1—S. Central	70	146	271,918	535,409	3,884	3,667	....	2	.....	2,860	....	1,430
Dist. 2—Middle Gulf	[1]	295	[1]	1,834,068	[1]	6,217	[1]	5	[1]	14,393	[1]	2,879
Dist. 3—Upper Gulf	335	374	2,403,900	2,420,771	7,176	6,473	....	1	.....	971	....	971
Dist. 4—L. Gulf-S.W.	737	534	4,117,439	2,905,424	5,587	5,441	13	9	11,124	5,204	856	578
Dist. 5—East Central	[2]	62	[2]	334,741	[2]	5,399	[2]	1	[2]	1,425	[2]	1,425
Dist. 6—Northeast	344	223	1,882,270	1,133,733	5,472	5,084	2	2	2,966	1,674	1,483	837
Dist. 7-B—N. Central	[3]	382	[3]	1,205,827	[3]	3,157	[3]	6	[3]	2,050	[3]	342
Dist. 7-C—W. Central	[4]	117	[4]	404,029	[4]	3,453	[4]	3	[4]	544	[4]	181
Dist. 8—West	800	876	3,937,669	4,450,028	4,922	5,080	20	49	12,595	19,371	630	395
Dist. 9—North	1,470	963	3,739,691	2,596,458	2,544	2,696	19	34	11,147	15,990	328	470
Dist.10—Panhandle	180	222	553,870	768,533	3,077	3,462	20	4	1,349	220	67	55
Utah	2	3	2,795	14,143	1,397	4,714	....	....	.....	.....	....	....
Washington	1	....	6,230	.....	6,230	.....	....	....	.....	.....	....	....
West Virginia	347	370	973,557	1,054,175	2,806	2,849	15	18	4,165	5,182	278	288
Wyoming	77	93	344,645	449,650	2,799	4,835	....	1	.....	292	....	292
Total United States.	13,920	14,546	46,759,943	50,388,619	3,359	3,464	280	334	153,791	226,826	549	679

[1] Dist. 2 included with Dist. 4. [2] Dist. 5 included with Dist. 6. [3] Dist. 7-B included with Dist. 9. [4] Dist. 7-C included with Dist. 8 [5] Part of Bradford field now included in New York; formerly, all was carried in Pennsylvania.

Above Average

VIEWED in comparison with results in former years, the record of wildcatting in the U. S. in the first half of 1947 is quite encouraging. The industry engaged in the most active program of exploratory drilling in history and scored a better than average percentage of strikes. Consequently, new reserves that were developed very likely exceeded those used up during the half-year, as has been the case consistently in the past.

Stated in another way, the relatively large number of successful exploratory well completions in the first half of 1947 strongly indicates that proved reserves stood at a new high level at the middle of this year.

In the first half of 1947 the total volume of drilling was somewhat above the average for the preceding ten years, 1937-1946. While the industry completed on the average about 28,000 wells annually in that ten-year period, it completed more than half that number in this year's first period, although the in-

CONTINUED ON PAGE 69

Ratio of Wildcatting to all Drilling and Proportion of Wildcats Discovering New Fields, By Districts, 1937-1946

STATE OR DISTRICT	TEN YEARS, 1937-1946						FIRST SIX MONTHS, 1947					
		*STRICT WILDCATS						*STRICT WILDCATS				
		Total			Productive			Total			Productive	
	Total Wells Drilled (All Classes)	Number	Percent of All Wells	Dry	Number	Percent of All Strict Wildcats	Total New Wells Drilled (All Classes)	Number	Percent of All Wells	Dry	Number	Percent of All Strict Wildcats
Alabama	151	110	72.8	107	3	2.7	9	6	66.7	6	....	....
Arizona	22	22	100.0	22	....	....	....	....	....	....	....	....
Arkansas	2,169	489	22.5	448	41	8.4	119	27	22.7	25	2	7.4
California	14,135	1,697	12.0	1,610	87	5.1	909	133	14.6	130	3	2.3
Colorado	449	77	17.1	71	6	7.8	79	15	2.1	14	1	6.7
Florida	71	66	93.0	65	1	1.5	17	16	94.1	16	....	....
Georgia	30	30	100.0	30	....	....	1	1	100.0	1	....	....
Illinois	24,460	4,304	17.6	4,012	292	6.8	886	187	21.1	168	19	10.2
Indiana	3,549	874	24.6	794	80	9.2	222	47	21.2	44	3	6.4
Iowa	17	17	100.0	17	....	....	....	....	....	....	....	....
Kansas	18,665	2,932	15.7	2,460	472	16.1	1,080	187	17.3	156	31	16.6
Kentucky	7,646	732	9.6	653	79	10.8	344	34	9.9	32	2	5.9
Louisiana	11,843	1,545	13.0	1,330	215	13.9	617	118	19.1	102	16	13.6
North Louisiana	5,517	822	14.9	758	64	7.8	323	65	20.1	60	5	7.7
South Louisiana	6,326	723	11.4	572	151	20.9	294	53	18.0	42	11	20.8
Maryland	2	2	100.0	2	....	....	....	....	....	....	....	....
Michigan	8,962	2,437	27.2	2,254	183	7.5	278	96	34.5	89	7	7.3
Mississippi	1,611	610	37.9	588	22	3.6	213	39	18.3	38	1	2.6
Missouri	719	150	20.9	146	4	2.7	26	9	34.6	9	....	....
Montana	2,381	150	6.3	123	27	18.0	73	4	5.5	4	....	....
Nebraska	277	158	57.0	155	3	1.9	....	....	....	....	....	....
New Mexico	4,950	511	10.3	451	60	11.7	260	29	11.2	26	3	10.3
New York	10,447	12	0.1	12	....	....	796	....	....	....	....	....
North Carolina	6	6	100.0	6	....	....	1	1	100.0	1	....	....
North Dakota	9	2	22.2	2	....	....	....	....	....	....	....	....
Ohio	11,517	244	2.1	207	37	15.2	617	27	4.4	26	1	3.7
Oklahoma	21,205	2,629	12.4	2,167	462	17.6	1,734	333	19.2	282	51	15.3
Oregon	3	3	100.0	3	....	....	1	1	100.0	1	....	....
Pennsylvania	38,231	26	0.1	9	17	65.4	1,595	1	....	1	....	....
South Carolina	4	4	100.0	4	....	....	....	....	....	....	....	....
South Dakota	11	11	100.0	11	....	....	....	....	....	....	....	....
Tennessee	279	98	35.1	92	6	6.1	9	9	100.0	9	....	....
Texas	87,613	11,938	13.6	10,630	1,308	11.0	4,194	745	17.8	640	105	14.1
Dist. 1—S. Central	2,569	1,026	39.9	978	48	4.7	146	66	45.2	60	6	9.1
Dist. 2—Middle Gulf	[1]	[1]	[1]	[1]	[1]	[1]	295	71	24.1	57	14	19.7
Dist. 3—Upper Gulf	9,053	1,259	13.9	1,105	154	12.2	374	86	23.0	69	17	19.8
Dist. 4—L. Gulf-S.W.	18,652	3,383	18.1	3,008	375	11.1	534	130	24.3	108	22	16.9
Dist. 5—E. Central	[2]	[2]	[2]	[2]	[2]	[2]	62	27	43.5	27	....	....
Dist. 6—Northeast	10,335	1,086	10.5	1,018	68	6.3	223	25	11.2	22	3	12.0
Dist 7-B—N. Central	[3]	[3]	[3]	[3]	[3]	[3]	382	127	33.2	110	17	13.4
Dist 7-C—W. Central	[4]	[4]	[4]	[4]	[4]	[4]	117	18	15.4	13	5	27.8
Dist. 8—West	18,806	1,348	7.2	1,180	168	12.5	876	60	6.8	54	6	10.0
Dist. 9—North	23,221	3,764	16.2	3,274	490	13.0	963	127	13.2	113	14	11.0
Dist. 10—Panhandle	4,977	72	1.4	67	5	6.9	222	8	3.6	7	1	12.5
Utah	29	13	44.8	13	....	....	3	3	100.0	3	....	....
Virginia	4	4	100.0	3	1	25.0	....	....	....	....	....	....
Washington	5	5	100.0	5	....	....	....	....	....	....	....	....
West Virginia	7,968	29	0.4	17	12	41.4	370	1	0.3	....	1	100.0
Wyoming	1,398	160	11.4	119	41	25.6	93	15	16.1	12	3	20.0
Total United States	280,838	32,097	11.4	28,638	3,459	10.8	14,546	2,084	14.3	1,835	249	11.9

* Exclusive of all tests seeking new pay zones or outposts attempting to extend known fields.
[1] Dist. 2 included with Dist. 4. [2] Dist. 5 included with Dist. 6. [3] Dist. 7-B included with Dist. 9. [4] Dist. 7-C included with Dist. 8.

Shortages Hold Drilling To Moderate Increase

IN SPITE of shortages of casing, tubing, and other materials, some upward revision of original forecasts of U. S. drilling for 1947 appeared necessary at mid-year. At that time cumulated completions were 4.8 percent ahead of the 1946 record. That was not a materially greater increase than forecast. But in response to higher crude prices and urgent need for crude, all possible effort was being made to increase completions, and the number of drilling operations was well above 10 percent in excess of those at the middle of 1946, promising an increase in the gain over last year's completions.

Wildcatting has been especially active this year, as expected, and successful exploratory wells have been considerably more numerous than those last year. However, the need for new reserves remains great, and exploratory as well as development drilling will continue very active.

In view of present relatively favorable crude prices and the strong demand for crude, drilling in the remainder of 1947 apparently will be limited only by the availability of materials. However, that limitation is being only gradually relieved, and it will prevent any skyrocketing of the rate of completions.

West Texas-New Mexico

As the demand for crude grew increasingly urgent this year, the Permian Basin of West Texas and New Mexico assumed great importance as virtually the only remaining district having the ability to produce more crude than was actually being produced. Accordingly, special efforts were put forth to provide transportation facilities for moving more oil out of the region, and drilling was at the same time increased. Completions have been well above last year, and exploratory drilling and the success thereof have continued at the high levels of 1946. Because of its increased importance as a source of crude supply, the region doubtless will continue exceptionally active in drilling.

The Texas Panhandle has been more active this year than last in response to strong demand for natural gas as well as crude, and a high number of active drilling rigs indicates continued brisk development.

North and East Texas

Although North and North Central Texas have not had as many completions as last year, there are now more drilling rigs in operation than a year ago, and henceforth a more favorable comparison in completions is indicated. The

increase in drilling reflects favorable results in exploration, as successful exploratory tests were more numerous in the first half of this year than in the like period of last year.

East Texas has had as much exploratory drilling as last year but results have been less favorable and there has been a decline in total completions. While there has been some increase in drilling lately, the number of active rigs is only about the same as a year ago.

Upper Texas Coast

Drilling on the Upper Texas Gulf Coast has been marked by a large number of operations at the extreme east and west ends of the area. A number of new fields have been discovered in Wharton County, most being rich gas-condensate producers. There is still prolific wildcatting in this area and it is expected to continue during the last half of the year.

In the eastern area there has been considerable drilling in Orange and Jefferson counties, due principally to two discoveries completed during the last half of 1946 and the first half of 1947. Drilling continues in the North Port Neches field area, and another new discovery in this area is flank production at Orange field.

There appears to be no let up in drilling activity in the Upper Gulf Coast province. Exploration on the flanks of known fields is receiving immediate attention of all operators. Some exploration is expected to continue along the Wilcox trend, but at a reduced rate. A few geophysical crews are working the Continental Shelf area off the coast of Texas. As Texas has not offered any of its Gulf of Mexico lands for lease, no drilling is expected on the Continental Shelf of Texas during 1947.

South Texas

The widespread and intensive exploration program which has been going on in the South Texas area during the first half of 1947 is expected to continue through the year. A large number of discoveries have been completed in this area, mostly for gas-condensate producers, but there have been a number of outstanding new fields discovered, such as Roche and Yoward. The flanks of known fields are undergoing exploration, just as is true on the Upper Coast of Texas and in South Louisiana.

Greatest concentration of drilling in South Texas is in the Agua Dulce, Seeligson, Stratton, Canales, Tijerina fields, located in Kleberg, Jim Wells, Brooks and Nueces counties.

Exploration on the Continental Shelf along the coast of South Texas is receiving very little attention and little geophysical exploration is expected there during the latter part of the year.

South Louisiana

Drilling in South Louisiana is expected to continue at the high rate that the area experienced during the first half of 1947. An area undergoing extensive drilling is the Miocene-Oligocene trend, with a large number of wildcat operations expected to be started during the latter

part of the year in the Miocene trend of southeastern Louisiana. Also undergoing extensive exploration are the flanks of the known fields, as well as deep operations in proven fields. Geophysical exploration and wildcatting on the Continental Shelf out in the Gulf of Mexico is expected to continue despite the Supreme Court's ruling in favor of the Federal Government's ownership of these lands. Magnolia Petroleum Company has already completed two wildcats on the Continental Shelf and is reported making locations for immediate operations on two others. The Superior Oil Company is ready to commence operations on its first Continental Shelf wildcat and other companies are expected to go ahead with wildcat activity.

Eighty percent of the geophysical exploration in South Louisiana is taking place along the Miocene-Oligocene trend, with the majority of these crews located in the Miocene trend. Very little geophysical exploration is taking place along the Wilcox trend and wildcatting along this trend has dropped noticeably due to a disappointing discovery rate.

Best discoveries for South Louisiana during the first half of 1947 took place in the Oligocene trend area in southwest Louisiana. Also considerable field development has been taking place along this trend.

An outstanding discovery is the Bivins field, Beauregard Parish, which has already been offset by a dry hole; and the east extension of the Vinton field, Calcasieu Parish, with a good producer.

North Louisiana-Arkansas

North Louisiana has had about the same amount of drilling this year as last in both development and exploratory activity and likely will continue on the same basis, although discoveries have not equaled those of last year. Arkansas has had more completions, more exploratory drilling, and more discoveries than last year and currently has nearly twice as many rigs in operation as a year ago, indicating continued active development.

Southeastern States

Though new discoveries in the Southeastern States for the first six months of 1947 were at their lowest rate in years, drilling activity shows little signs of diminuition.

In Mississippi there have been almost as many wells drilled during the first six months of the year as during the whole of 1946. A large part of this is accounted for by the rapid development of the Brookhaven field in Lincoln County and the LaGrange field in Adams County. In each of these cases it is significant, however, that there were no important extensions to known reserves, and unless new discoveries are made on the flanks of these fields activity may be expected to fall off as the development is completed.

Of chief interest for the second half of the year are the two tests in Jones County, both of which have an excellent chance of making producers. Gulf Refining Company's L. L. Majors 1, in the southern part of the county, has recovered the deepest shows ever reported in the state with a test of 680 feet of 33-gravity oil at 12,114-24 feet. The prospect also had good showings in sand sections of the Eutaw and Tuscaloosa zones farther up the hole. The well probably will be drilled to 13,000 feet before final tests are run.

Farther north in the vicinity of Sandersville, Union Sulphur Company's Earline Parker 1 seems assured of production in the Eutaw zone at approximately 5438 feet. The Parker is on the third point of a triangle, the other two of which are the Heidelberg and Eucutta fields. The test is taking place on a fault structure similar to Heidelberg. The entire county has been rather heavily prospected in the past but during the last 18 months activity has fallen off.

Bulk of the play continues to be concentrated in the area of known potentialities in the south-central zone across the state but there is also an increasing tendency to explore the areas north and south. Interesting shows have been noted in a Chickasaw County prospect in the northwestern section of the state, and in an Amite County test in the southern section.

In view of all this, wildcat activity in Mississippi should continue at a rapid pace for the remainder of the year.

In Alabama there is nothing to indicate any increase in activity for the last half of 1947. The previous year had seen the limits of the Gilbertown fields reached and there has been little new drilling in the area since that time. Two Glen D. Rose prospects in Walker and Winston counties in the north central section of the state were reported to have good shows of gas, but at the present time they are shut down for orders with no record of completion. Most activity is taking place in the western section of the state.

Florida's activity is leveling off from the high level established at the beginning of the year. While there are as many prospects drilling as during the winter, many are carryovers from that time. Only encouragement noted among the wildcats was Humble's Lee Cypress Company 1, Collier County, which had a show of oil, but driller was unable to establish commercial production and the well was abandoned. Gulf also had shows at extreme depths in its Monroe County test, but the hole was abandoned below 15,000 feet.

For the remainder of the year most of the play likely will take place in the counties at the northern end of the peninsula with some activity at the southern tip and also two or three tests in the northwestern sector. Prospecting should continue at about the same rate it is now maintaining.

After a long period of quiescence drilling activity has been resumed in Georgia. Tests are being made in Appling and Toombs counties in the southeastern part of the state.

California

Were not scarce materials a limiting factor the oil industry in California probably would drill more wells in the last half of this year than in any similar period in its history. Two California crude price increases in less than four months totaling 45 cents have caused over 500 marginal wells to be placed back on production and have focused interest in old low-gravity producing areas where there has been no development for years. Areas mostly affected are in the Coastal District, notably in the Los Flores, Lompoc, Orcutt and Cat Canyon fields.

The most important drilling development in the state during the remainder of the year, however, should be in the Wilmington field, off shore, where relatively numerous wells are drilling and many more locations are available for both the Ranger and Terminal zones. Status of this area under the terms of the recent California tidelands decision by the Supreme Court was in doubt until subsequent conferences in Washington between state and federal authorities resulted in the signing of a stipulation removing the major portion of the Wilmington and Long Beach Harbor fields from the zone claimed by the federal government.

Other major areas of activity in the last half of 1947 will be in the Ventura Avenue field where drilling below 10,000 feet is progressing in the D-7 zone, and in the McKittrick, Salt Creek, Cymric, Paloma, Edison, Mountain View, Seal Beach and Newport fields.

Wildcatting is certain to maintain the pace of the last year and a half. While there have been few new field discoveries in California in recent years, the new pool and outpost discoveries are of sufficient importance to attract the wildcatter. Discoveries of important high gravity production near Montalvo in Ventura County by Standard Oil Company of California and near Orcutt in Santa Barbara County by Sunray Oil Corporation during the last six months indicate that while oil fields are harder to find the possibility of discovery still exists.

California crude production should

continue at about 920,000 barrels a day or at the highest peacetime level in history.

Rocky Mountains

In the Rocky Mountain region Colorado and Wyoming have had more well completions and more exploratory drilling in 1947 than in 1946, although Montana has registered decreases in both field and exploratory completions. Currently, all three states are more active than a year ago.

Some success rewarded exploratory efforts in the first half of this year in the form of several new oil and gas fields, pay zones, and field extensions. This encouragement, together with favorable prices and good demand for crude, assures continued active drilling, particularly in view of the prospects for important refinery and pipe line expansion in the region.

Oklahoma

Although the biggest discovery in Oklahoma during 1947 was Sohio Petroleum Company's Howard 1, SE SE NW 17-1n-2w, in southern Garvin County, and taking into consideration that the Garvin-McClain County trend has been holding the drilling spotlight, there is every reason to believe that other sectors of Oklahoma will be equally active during the latter half of 1947.

Southern Oklahoma as a whole will be more active than other areas, but the Greater Seminole area, embracing four counties, will hold its own in activity.

The Cotton County trend has quieted down somewhat, although there is still considerable activity, particularly in wildcatting.

Greater Seminole probably will be responsible for holding up the state's production, as hardly a week goes by without some independent operator finding new production in an old area previously thought to be dry.

Outcome of drilling operations in the big Anadarko Basin area are unpredictable, although a profound effect on future deep drilling undoubtedly will be felt by results of the world's deepest test, The Superior Oil Company of California's Weller 51-11, NW NW NE 11-8n-12w, which was recently testing at 17,823 feet.

Kansas

There have been no outstanding strikes in Kansas in 1947. No certain areas are scheduled for intense exploration due to discoveries earlier in the year, but several counties should remain high on the activity list. These include Ellis, Russell, Rush, Barton, Rice, Barber and Butler counties.

The Hugoton gas area should remain active, as several major companies develop their leases. Stanolind Oil & Gas Company is still developing acreage in anticipation of the proposed synthetic gasoline plant, to be erected in Kansas, probably during 1948.

Major activity in the Hugoton area at present is being carried out by companies seeking to increase their reserves.

Illinois Basin

Drilling operations in Illinois, Indiana and Kentucky are expected to hit the same rate during the last half of the year as they did in the first six months.

While no great discoveries have been made in the first half, numerous important strikes have been made and many pools have been given worthwhile extensions and new pay zones.

Yet untired areas may receive deep tests during the last half where shallower production has been found.

A scarcity of pipe and other steel supplies has caused difficulty in some sections during the past few weeks and if the situation continues it may reduce the drilling pace. Many operators have been purchasing used casing and pipe from abandoned wells but they expect the situation to ease.

Heavy demands and good prices combine to stimulate drilling.

Ohio

Drilling activity in Ohio is about stabilized and little change is expected in the last half of the year. Wildcatting, which has been slow this year, should increase as the more active areas have passed their peaks and the search for new fields will be intensified.

The most active search for new fields probably will center around the city of Canton, which now has the greatest concentration of drilling tools in the state. Plans have been made for tests in surrounding townships, and four wildcats are drilling.

The Salt Creek and Blue Rock pools in the Brush Creek field are being enlarged, and outside tests are now drilling while others are planned. The area east and northeast of the present field in particular will have a number of important tests this year.

Part of the Lancaster field in eastern Perry County, and the northwest corner of Morgan County is becoming a major producing area of both gas and oil. An oil strike in Deerfield township, Morgan County, will be developed. Oil and gas in western York township, Morgan County, and gas in Bearfield and Pleasant townships in Perry County are now being actively drilled.

The Ashland field and Lorain County in particular is being drilled at a steady rate, and drilling will continue so, as new gas pools occasionally are found.

Most of the drilling in the Stewart field is confined to the Hemlock Grove pool. The boundaries of this pool have not yet been defined and many locations remain to be drilled.

Michigan

First half of the year has brought the development of the first new reserves of any consequence since mid-1944 with two fields in the western part of the state, each shallow Traverse lime production, having prospects of producing a total of 10 million barrels or more. The relative importance of this, while nationally small, to Michigan can be seen from total reserve addition last year of less than 6 million barrels.

Total estimated crude production first half of this year was 7,704,500 barrels, a drop of 850,000 barrels from the corresponding period in 1946. Last available production figures showed Michigan's daily average down to 41,400 barrels per day and of this 3300 barrels daily was being produced from the two new shallow fields.

Discovery by The Carter Oil Company late in 1946 of the Stony Lake pool, Oceana County, followed early this year by Sun Oil Company's discovery of the Kimball Lake pool in Newaygo County, not only proved a "life saver" in preventing a sharp and serious crude drop but also re-focused lease and exploratory attention all along the northwestern side of the State.

Wildcatting Success

■ CONTINUED FROM PAGE 64

itial half traditionally accounts for less than 50 percent of a year's completions.

Furthermore, a greater part of total drilling was devoted to wildcatting this year than in the past. Of the total completions in the first six months of this year, 14.3 percent were strict wildcats, whereas only 13.4 percent were wildcats in the first half of 1946 and 11.4 percent in the 1937-1946 decade. Consequently, the number of wildcat completions this year has broken all previous records. There were 2084 strict wildcat completions in the first half of 1947 compared with 1815 in the initial half of 1946 and a half-year average of only 1600 for the ten years, 1937-1946.

While wildcat completions were more numerous than formerly, in the first half of 1947, they also were successful in higher proportion. Of the strict wildcats completed, 11.9 percent discovered new fields, compared with 11.7 percent in the first half of 1946 and 10.8 percent in the 1937-1946 decade.

In reflection of the large number of wildcats drilled and the favorable ratio of success, 249 new oil, distillate, and gas fields were discovered. That number compared with 213 discoveries in the first six months of 1946 and an average of 173 per half year for the ten years prior to 1947.

Many Companies Compete in Production Refining

THE HIGHLY competitive nature of the oil industry, in both the production and refining divisions, to say nothing of the even more competitive marketing, is reflected in data herewith tabulated. Whereas a few companies account for large proportions of the operations of some of the leading industries, it is necessary to include the 30 or so larger producing and refining companies to account for two-thirds to three-fourths of the petroleum industry's crude production and refinery runs. The remainder then breaks down into thousands of producers and numerous smaller refining companies.

In 1946 the larger companies accounted for a slightly lower proportion of U. S. crude production than in 1945, although they showed a slight increase in percentage of U. S. refinery runs.

The indicated gross production of 27 companies averaged 2,895,968 barrels daily in 1946, representing 61.0 percent of the total U. S. production of 4,749,106 barrels daily. In 1945 the same 27 companies accounted for 61.6 percent of the national total.

By subtraction it is found that the rest of the industry produced 39.0 per-

■ CONTINUED ON PAGE 73

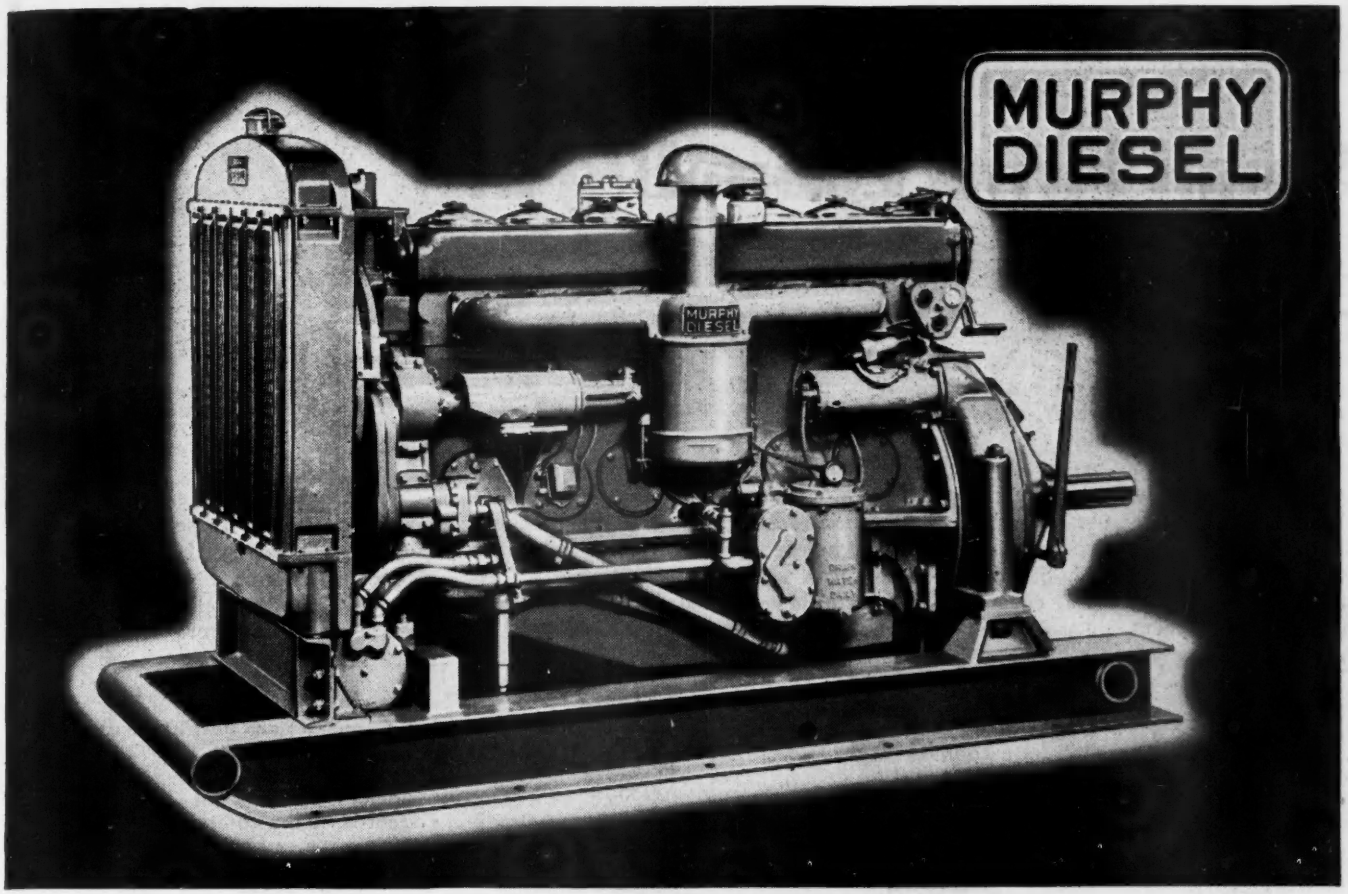
Domestic Crude Production and Refinery Runs of Some Larger U. S. Companies, Years 1945 and 1946

(Data from Annual Reports of Companies)

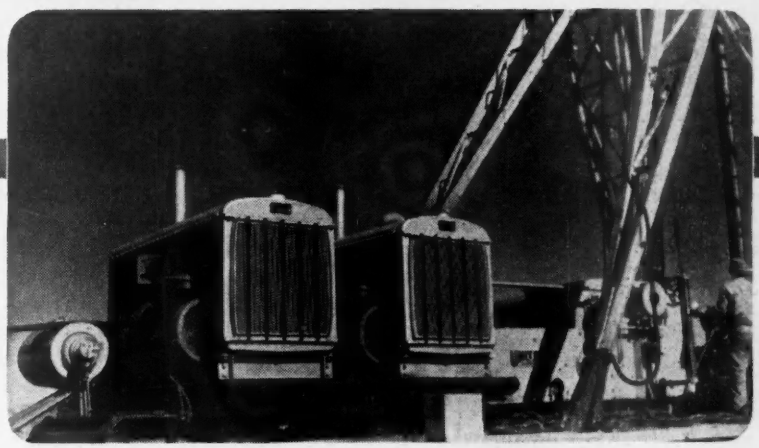
COMPANY	Net Domestic Crude Oil Production (Company's Net Share; Does Not Include Royalty and Co-Owner Interests)				Crude Oil Run to Stills			
	Total Barrels		Barrels Daily		Total Barrels		Barrels Daily	
	1945	1946	1945	1946	1945	1946	1945	1946
Amerada Petroleum Corporation	18,090,201	18,091,359	49,562	49,565	.....	.....	.....	.....
The Atlantic Refining Company	24,761,000	23,578,000	67,838	64,597	43,0070,00	44,656,300	118,000	122,346
Barnsdall Oil Company	9,951,731	9,701,436	27,265	26,579	.....	.....	.....	.....
Cities Service Oil Company	26,435,000	26,318,000	72,425	72,104	61,863,000	57,613,000	169,488	157,844
Continental Oil Company	33,941,827	34,980,359	92,991	95,837	19,686,225	22,307,284	53,935	61,116
Deep Rock Oil Corporation	2,683,556	2,880,123	7,352	7,891	4,366,466	4,405,331	11,963	12,069
Gulf Oil Corporation	74,013,674	75,124,066	202,777	205,819	106,615,417	125,016,741	292,097	342,512
Humble Oil & Refining Company	111,338,200	112,957,800	305,036	309,473	78,584,500	73,876,000	215,300	202,400
Lion Oil Company	3,536,907	3,585,007	9,690	9,822	6,217,047	6,034,128	17,033	16,532
Mid-Continent Petroleum Corporation	5,682,709	6,669,926	15,569	18,274	11,838,211	12,697,786	32,433	34,788
The Ohio Oil Company	32,825,545	31,403,741	89,933	86,038	7,002,000	7,536,000	19,184	20,647
Phillips Petroleum Company	34,222,927	33,542,092	93,762	91,896	28,091,709	29,378,111	76,964	80,488
Plymouth Oil Company	4,765,003	4,512,056	13,055	12,362	.....	.....	.....	.....
The Pure Oil Company	29,212,000	27,900,000	80,033	76,438	33,856,000	32,524,000	92,756	89,107
Shell Union Oil Corporation	69,275,000	65,224,000	189,795	178,696	102,540,000	99,403,000	280,932	272,337
Sinclair Oil Corporation	27,570,574	26,825,122	75,534	73,493	96,305,764	92,295,845	263,851	252,865
Skelly Oil Company	12,683,449	13,599,803	34,749	37,260	10,461,012	10,575,578	28,660	28,974
Socony-Vacuum Oil Company	61,612,000	60,590,000	168,800	166,000	140,999,500	150,380,000	386,300	412,000
South Penn Oil Company	4,223,050	4,450,080	11,570	12,192	.....	.....	.....	.....
Standard Oil Company of California	73,974,045	79,460,936	202,669	217,701	93,343,802	88,585,680	255,736	242,700
Standard Oil Company (Indiana)	64,685,408	64,533,584	177,220	176,804	114,558,119	124,432,303	313,858	340,910
Standard Oil Company (Ohio)	7,544,845	8,965,095	20,671	24,562	27,152,886	30,510,211	74,391	83,590
Sun Oil Company	27,112,472	28,919,478	74,281	79,231	57,444,261	57,890,728	157,382	158,605
Sunray Oil Corporation	6,574,077	9,491,460	18,011	26,004	1,542,014	3,489,925	4,225	9,561
The Texas Company	85,874,079	84,071,329	235,271	230,332	127,947,592	132,545,992	350,541	363,140
Tide Water Associated Oil Company	32,361,037	31,437,689	88,660	86,131	58,483,430	58,842,115	160,229	161,211
Union Oil Company of California	26,380,000	25,517,000	72,274	69,910	41,246,000	34,352,000	113,003	94,115
*Total Above Companies	911,330,316	914,329,541	2,496,793	2,505,011	1,273,214,955	1,299,348,058	3,488,261	3,559,857
(Percent of U.S. Total)	53.3	52.7	53.3	52.7	74.0	75.1	74.0	75.1
†Royalty & Co-Owner Oil Produced, Est.	142,230,743	142,698,830	389,675	390,957	.....	.....	.....	.....
†Gross Prod., Above Companies, Est.	1,053,561,059	1,057,028,371	2,886,468	2,895,968	.....	.....	.....	.....
(Percent of U.S. Total)	61.6	61.0	61.6	61.0	.....	.....	.....	.....
Rest of Industry	657,551,941	676,395,629	1,801,512	1,853,138	446,319,045	430,848,942	1,222,791	1,180,408
(Percent of U.S. Total)	38.4	39.0	38.4	39.0	26.0	24.9	26.0	24.9
Total, United States	1,711,113,000	1,733,424,000	4,687,980	4,749,106	1,719,534,000	1,730,197,000	4,711,052	4,740,265

* Production of 27 Companies; refinery runs of 23 Companies.

† Net production of above Companies (their net share) is here estimated as representing 86.5 percent of their gross production; and production for account of royalty and Co-Owner interests is estimated as 13.5 percent of gross.



Two Model ME-66 MURPHY DIESELS (each 6x6½", 6-cyl., 150 HP continuous, 180 HP intermittent) are compounded on this drilling rig to provide 300 HP continuous, 360 HP intermittent.



Dependable Power for "Making Hole"

MURPHY DIESEL dependability includes easy starting in any weather . . . instant response with plenty of power for sudden peak loads and reliable power for the long, steady pulls . . . economy in fuel consumption, operation and maintenance . . . ruggedness that means "always on the job" throughout years of heavy-duty service.

That's why drilling contractors, superintendents, tool pushers, drillers . . . as well as operators in pipe-line and producing work . . . are "sold" on MURPHY DIESEL dependability. Write for bulletin.

MURPHY DIESEL COMPANY
5313 W. Burnham Street, Milwaukee 14, Wisconsin
Tulsa Branch: 416 S. Detroit Ave., Tulsa 3, Okla.

DIESEL ENGINES: 90 HP TO 215 HP

MURPHY DIESEL

GENERATOR SETS: 60 KW TO 115 KW

Dependable Heavy-Duty Power

237

Small Firms Loom Big in Company Drilling

SMALLER companies and independent operators continued their very prominent role in U. S. drilling in the first half of 1947. However, they increased their total drilling and their wildcatting over 1946 by smaller percentages than did the larger companies.

This latter fact was not favorable, as it indicated that the independents, who do the greater part of U. S. development, had relatively less encouragement or inducement than formerly. While there were 4.5 percent more new wells completed in the U. S. in the first half of 1947 than in the like period of 1946, the smaller concerns showed an increase of only 2.9 percent. Similarly, total exploratory completions were up 13.1 percent but those of the smaller operators increased only 11.9 percent.

These results confirmed contentions that independent operators and small concerns are being discouraged by excessive income and inheritance taxes, government restrictions, high costs of operation, and other deterrents. While prices of crude have been increased during the past year, these drilling results indicate that increased costs may outweigh the increases in prices in determining whether wells are to be drilled by the smaller operators. Another possibility suggested is that the smaller op-

Total and Exploratory Wells Drilled in U. S. in First Six Months of 1947 by Some Larger Companies and Rest of Industry

(Statistical data presented here compiled from WORLD OIL's completion and exploratory drilling records. Partnership well is ascribed to company whose name is first on drilling report, this precedence usually signifying predominant interest. This procedure tends to compensate, furthermore, for other partnership wells of a company in which its name does not appear first. Because of these and other factors, these figures cannot be expected to agree with the records of the companies included.)

COMPANY	All New Wells Completed		Explo. Wells Comp.	Exploratory Wells Completed, in First Half of 1947					CLASS OF PRODUCTION PROVED in First Half of 1947									Strict Wildcats Comp.	‡Strict Wildcats Completed, in First Half of 1947				
				Total			*Productive		Oil			Distillate			Gas				Total			Productive	
	First Half, 1946	First Half, 1947	First Half, 1946	Number	% of All Wells	†Dry	Number	% of Total Exploratory	New Field	New Pay	Extensions	New Fields	New Pay	Extensions	New Fields	New Pay	Extensions	First Half, 1946	Number	% of All Wells	Dry	Number	% of Total Strict Wildcats
Amerada Pet. Corp.	78	102	14	15	14.6	11	4	26.7	1	2	....	....	....	....	1	....	....	13	11	10.7	9	2	18.2
Atlantic Ref. Co.	38	35	8	8	22.9	3	5	62.5	2	3	....	....	....	....	....	....	....	6	5	14.3	3	2	40.0
Barnsdall Oil Co.	32	53	6	9	17.0	8	1	11.1	....	1	....	....	....	....	....	....	....	6	8	15.1	8	....	100.0
California Co.	74	88	7	11	12.5	6	5	45.5	....	2	1	....	1	....	1	....	....	4	7	8.0	6	1	14.3
Carter Oil Co.	114	103	11	23	22.3	21	2	8.7	....	1	....	....	1	....	....	....	....	10	21	20.4	21	....	....
Cities Service Oil.	68	161	12	17	10.6	11	6	35.3	4	1	....	....	....	....	1	....	....	9	16	9.9	11	5	31.2
Continental Oil Co.	187	161	27	26	16.1	18	8	30.8	4	1	....	2	1	....	....	....	....	22	21	13.0	15	6	28.6
Deep Rock Oil.	37	22	5	3	13.6	3	....	....	....	....	....	....	....	....	....	....	....	3	3	13.6	3	....	....
General Pet. Corp.	46	35	6	4	11.4	4	....	....	....	....	....	....	....	....	....	....	....	5	4	11.4	4	....	....
‡Gulf Oil Corp.	232	291	16	29	10.0	19	10	34.5	4	3	1	....	1	....	....	1	....	10	23	7.9	19	4	17.4
Hope Natural Gas Co.	36	53	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
Humble O. & R. Co.	392	273	60	47	17.2	37	10	21.3	1	7	....	....	1	....	....	....	1	43	36	13.2	35	1	2.8
Magnolia Pet. Co.	165	226	25	31	13.7	19	12	38.7	3	4	1	....	2	1	1	....	....	19	23	10.2	19	4	17.4
Mid-Continent Pet.	52	78	5	12	15.3	9	3	25.0	1	1	1	....	....	....	....	....	....	2	10	12.8	9	1	10.0
Ohio Oil Co.	50	71	11	12	16.9	9	3	25.0	....	1	1	....	1	....	....	....	....	9	8	11.3	8	....	....
Pan American Prod.	29	20	2	5	25.0	3	2	40.0	....	....	1	1	....	....	....	....	....	....	4	20.0	3	1	25.0
Phillips Pet. Co.	113	131	14	14	10.7	8	6	42.7	3	2	....	....	....	....	....	....	1	10	10	7.6	7	3	30.0
Pure Oil Co.	173	88	30	12	13.6	10	2	16.7	1	....	1	....	....	....	....	....	....	22	10	11.4	9	1	10.0
Richfield Oil Corp.	27	20	6	7	35.0	7	....	....	....	....	....	....	....	....	....	....	....	5	7	35.0	7	....	....
Seaboard Oil Co.	31	23	12	8	34.8	7	1	12.5	1	....	....	....	....	....	....	....	....	11	8	34.8	7	1	12.5
Shell Oil Co.	124	139	20	17	12.2	14	3	17.6	....	1	1	....	1	....	....	....	....	16	14	10.1	14	....	....
‡Sinclair Oil Corp.	65	92	11	5	5.4	1	4	80.0	1	3	....	....	....	....	....	....	....	4	2	2.2	1	1	50.0
Skelly Oil Co.	115	101	17	9	8.9	7	2	22.2	1	1	....	....	....	....	....	....	....	13	8	7.9	7	1	12.5
Sohio Pet. Co.	58	88	21	23	26.1	16	7	30.4	2	1	1	2	1	....	....	....	....	18	20	22.7	16	4	20.0
South Penn. Oil Co.	431	275	7	....	....	....	....	....	....	....	....	....	....	....	....	....	....	7	....	....	....	....	....
Standard Oil Calif.	140	137	12	10	7.3	8	2	20.0	1	1	....	....	....	....	....	....	....	11	9	6.6	8	1	11.1
Standard Oil Texas	18	32	6	13	40.6	9	4	30.8	1	2	....	....	....	....	1	....	....	4	11	34.4	9	2	18.2
Stanolind O. & G.	112	308	17	35	11.4	21	14	40.0	7	1	2	1	....	1	1	....	1	10	24	7.8	21	3	12.5
Sun Oil Co.	123	168	26	32	19.0	22	10	31.2	4	3	1	....	....	....	1	1	....	18	25	14.9	20	5	20.0
Sunray Oil Co.	27	43	....	8	18.6	7	1	12.5	....	1	....	....	....	....	....	....	....	....	7	16.3	7	....	....
Superior Oil Calif.	64	60	10	18	30.0	14	4	22.2	2	2	....	....	....	....	....	....	....	7	15	25.0	13	2	13.3
The Texas Co.	195	263	29	59	22.4	41	18	30.5	3	8	1	....	2	....	2	1	1	26	43	16.3	38	5	11.6
Tex. Pacific C. & O.	27	7	3	2	28.6	....	2	100.0	....	2	....	....	....	....	....	....	....	2	....	....	....	....	....
Tide Water Assoc.	88	113	5	11	9.7	10	1	9.1	....	....	....	....	....	....	....	1	....	4	10	8.8	10	....	....
Union Oil, Calif.	80	137	10	17	12.4	14	3	17.6	....	....	1	....	1	....	1	....	....	9	15	10.9	14	1	6.7
Union Prodcg. Co.	22	15	3	5	33.3	3	2	40.0	....	....	1	....	1	....	....	....	....	2	3	20.0	3	....	....
United Prod. Co.	27	9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total 37 Co's	3,690	4,022	475	557	13.8	400	157	28.2	47	55	15	6	14	2	10	4	4	361	441	11.0	384	57	12.9
(% of U.S. Total)	26.5	27.7	22.6	23.4	....	21.1	32.4	....	24.6	40.4	31.3	31.6	56.0	28.6	25.6	30.8	57.1	19.8	21.2	....	20.9	22.9	....
Rest of Industry	10,230	10,524	1,630	1,824	17.3	1,496	328	17.8	144	81	33	13	11	5	29	9	3	1,462	1,643	15.6	1,451	192	11.7
(% of U.S. Total)	73.5	72.3	77.4	76.6	....	78.9	67.6	....	75.4	59.6	68.7	68.4	44.0	71.4	74.4	69.2	42.9	80.2	78.8	....	79.1	77.1	....
Total U. S.	13,920	14,546	2,105	2,381	16.4	1,896	485	20.4	191	136	48	19	25	7	39	13	7	1,823	2,084	14.2	1,835	249	11.9

* In addition to discovery wells of entirely new fields this column includes successful outposts or major extension wells and wells proving new pays, as shown in detail columns to the right. † Besides dry wildcats, this column includes dry outposts and dry new pay tests; however, for whole industry 96.8 percent of total shown are strictly wildcats.
‡ Exclusive of all tests seeking new pay zones or attempting to extend known fields. ‡ Gulf includes Western Gulf; Sinclair includes Sinclair-Prairie, Sinclair-Wyoming.

erators may have been retarded relatively more than the larger companies by the shortages of casing, tubing, and other materials.

In the first half of this year, 37 of the larger companies completed 27.7 percent of the new wells finished, while smaller operators completed the other 72.3 percent. The same 37 larger companies drilled, however, only 23.4 percent of the total exploratory wells, while the rest of the industry accounted for 76.6 percent.

The larger companies, as usual, were relatively more successful than the independents in their exploratory development. Although drilling only 23.4 percent of U. S. exploratory wells, the larger companies accounted for 32.4 percent of those that were productive. While the smaller operators drilled 76.6 percent of the exploratory wells, they accounted for 67.6 percent of those that were productive. This result reflected the relatively better information on which large company wells were drilled as a rule. In the realm of strict wildcatting, excluding exploratory drilling in and around known fields, however, the smaller operators did about as well as the larger companies. The larger concerns drilled 21.2 percent of the strict wildcats and accounted for 22.9 percent of the entirely new fields discovered, and the smaller concerns drilled 78.8 percent of all strict wildcats and found 77.1 percent of the new fields.

For the industry as a whole, 16.4 percent of all new wells completed in the first half of 1947 were exploratory, and among these, 20.4 percent were successful. Of all the new wells drilled, 14.3 percent were strict wildcats, and among the strict wildcats 11.9 percent were productive, discovering new fields.

Leadership in drilling activity has been taken this year by Stanolind Oil & Gas Company, which completed 308 new wells in the first six months. Gulf Oil Corporation was second with 291 completions, and it was followed closely by South Penn Oil Company, Humble Oil & Refining Company, The Texas Company, and Standard Oil Company of California (including subsidiaries, The California Company and Standard Oil Company of Texas). Those companies drilled over 250 wells each, and Magnolia Petroleum Company drilled over 225.

The most active company this year in exploratory drilling has been Texas, with 59 such completions in the first six months—22.4 percent of that company's total completions. Humble was second with 47 exploratory completions, representing 17.2 percent of the company's total completions. Stanolind, Standard of California, Sun Oil Company, and Magnolia followed with more than 30 each. While Texas led in total exploratory completions, it also led in successful exploratory completions, which numbered 18. Likewise, Stanolind was second in successful, as well as total, exploratory completions.

Leaders in discovering entirely new fields included Continental Oil Company, Texas, Sun, and Cities Service Oil Company, with five or more discoveries each.

Company Production

■ CONTINUED FROM PAGE 70

cent of the U. S. production in 1946 and 38.4 percent in 1945. The bulk of the remainder represents production by the smaller companies and operators, although including limited amounts of large-company production not embodied in the totals for the 27 companies. For example, the 27 companies include Humble Oil & Refining Company, largest domestic subsidiary of Standard Oil Company (New Jersey), but they do not include Standard of New Jersey itself or its subsidiary, The Carter Oil Company.

Humble's Production

Humble is the largest U. S. producer. In 1946 its net production of crude, not including oil produced for the account of royalty and co-owner interests, averaged 309,473 barrels daily, a slight increase over the 305,036 barrels per day of 1945. The 1946 net production represented 6.5 percent of all U. S. output. The company did not report the amount of its gross production, but its indicated gross is about 375,000 barrels daily or 7.9 percent of the U. S. total. In 1945 as in 1946 Humble's net production was 6.5 percent of the national total and its reported gross production of 372,000 daily in 1945 was 7.9 percent of the U. S. total. In 1945 Humble's parent company, Standard of New Jersey, reported gross production in the U. S. averaging 423,000 barrels daily, or 9.0 percent of the national total.

The Texas Company remained the second largest U. S. producer in 1946. Its 230,32 barrels daily net production was 4.8 percent of the U. S. total, and its gross of 270,731 daily was 5.7 percent of the national total.

Standard Oil Company of California became the third largest domestic producer in 1946. Its net domestic production of 217,701 barrels daily was 4.6 percent of the national total and its gross of 234,597 daily was 4.9 percent.

Gulf Oil Corporation, the third largest domestic producer in 1945 with a very slight lead over Standard of California, dropped into fourth place in 1946, in spite of a small increase in its own production. Gulf's net domestic production of 205,819 barrels daily was 4.3 percent of the U. S. total, and its gross production of 239,102 barrels per day was 5.0 percent of the national total.

Shell Union Oil Corporation retained fifth place among domestic producers. Its net output of 178,696 barrels daily represented 3.8 percent of U. S. production. In 1945 Shell produced 189,795 barrels daily.

In sixth place and only a little behind Shell was Standard Oil Company (Indiana). Its net production of 176,804 barrels per day was 3.7 percent of the nation's output and its gross of 203,532 daily was 4.3 percent.

Seventh among U. S. producers was Socony-Vacuum Oil Company, with net output of 166,000 barrels daily in 1946. That was 3.5 percent of the U. S. total.

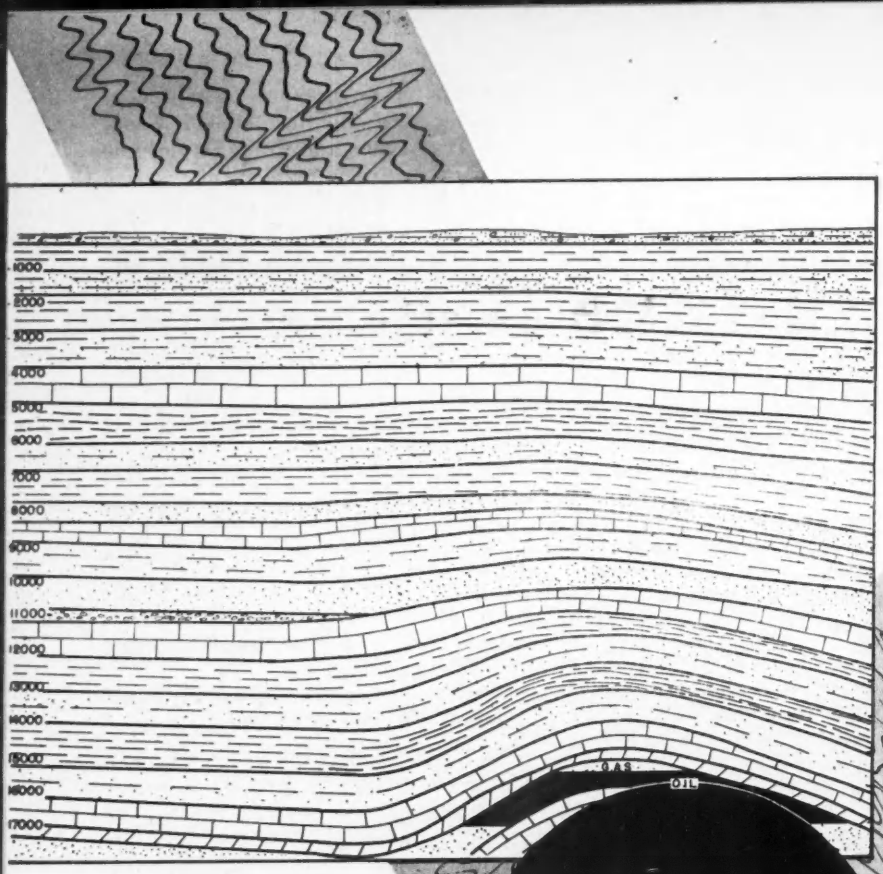
The net domestic production of the above seven companies totaled 1,484,825 barrels daily, representing 31.3 percent of the U. S. production.

After the seven leading domestic producers came companies with net production of less than 100,000 barrels daily, or with 2 percent or less of U. S. production.

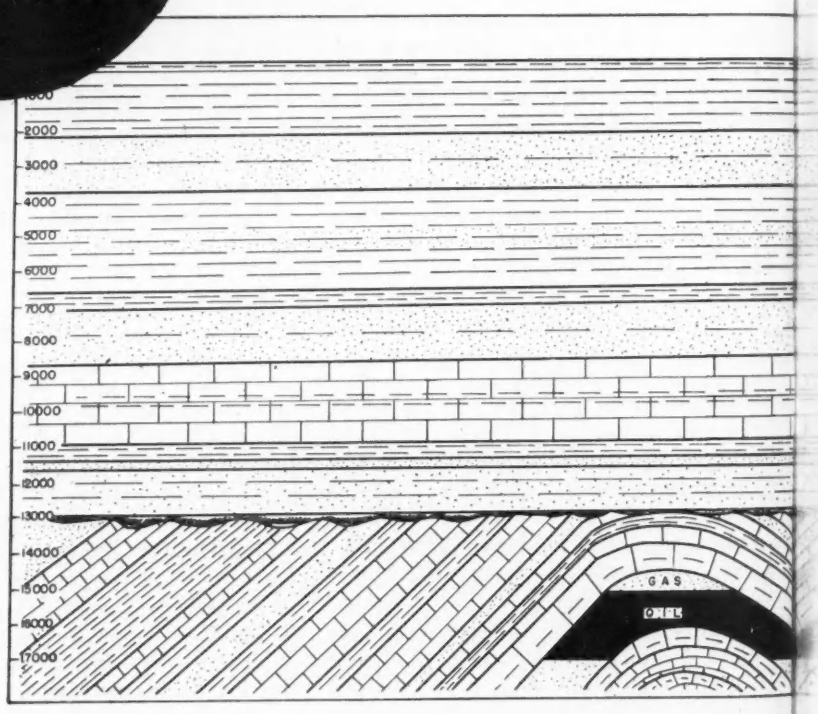
Principal Refiners

Although refining is participated in by many companies, it is more concentrated than production. In 1946, 23 companies reported refinery runs averaging 3,559,857 barrels daily or 75.1 percent of total runs at U. S. refineries. These 23 companies include Humble but not that concern's parent company, Standard Oil Company (New Jersey). Standard of New Jersey is the largest domestic refiner, and in 1945 reported refinery runs averaging 606,000 barrels daily, or 12.9 percent of the U. S. total, including operations of Humble and subsidiaries with plants on the East Coast, coastal Louisiana, and elsewhere. In the data for the 23 companies for 1946, substitution of Standard of New Jersey instead of Humble would indicate refinery runs of over 3,950,000 barrels daily or about 83.5 percent of the U. S. total.

The second largest U. S. refiner is Socony-Vacuum, which ran 412,000 barrels daily to stills in 1946, or 8.7 percent of the national total. Texas Company was third with runs of 363,140 daily, 7.7 percent of U. S. runs. Gulf was fourth, running 342,512 daily, 7.2 percent of the total, and Standard Oil Company (Indiana) fifth, with runs of 340,910 daily, or 7.2 percent. Next in order were Shell, 272,337 daily, 5.7 percent; Sinclair, 252,865 daily, 5.3 percent; Standard of California, 242,700 daily, 5.1 percent; Humble, 202,400 daily, 4.3 percent; Tide Water Associated Oil Company, 161,211 daily, 3.4 percent; Sun Oil Company, 158,605 daily, 3.3 percent; Cities Service Oil Company, 157,844 daily, 3.3 percent; The Atlantic Refining Company, 122,346 daily, 2.6 percent. Each of the other refining companies accounted for runs of less than 100,000 barrels daily.



EXPLORING DEEPER HORIZONS..



TODAY, General Crews are shooting well ahead of present deep production to locate tomorrow's reserves. With equipment specifically designed for deeper exploration, these experienced crews are now compiling accurate data on prospective producing formations as deep as there are reflecting horizons . . . to the deepest sedimentary beds.

For those operators who are looking forward to deeper drilling as their next frontier, this accurate data on the deepest sedimentary beds . thoroughly compiled and correctly interpreted . . . will lead the way to tomorrow's deeper production.

Dependable General Crews have been accurately determining and locating conditions favorable to finding new oil for more than a decade. Let them help you accurately explore deeper horizons for tomorrow's reserves. General is better equipped than ever to serve.

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GEOPHYSICAL COMPANY HOUSTON

At All-Time High

THERE were more exploratory wells drilled in the first half of 1947 than in any comparable period in history, and at this point it is quite evident that this will be the record year of all time.

Last year was the most active in this type of drilling, but at the halfway mark this year's program had a 13 percent lead with good prospects of holding or even widening the margin.

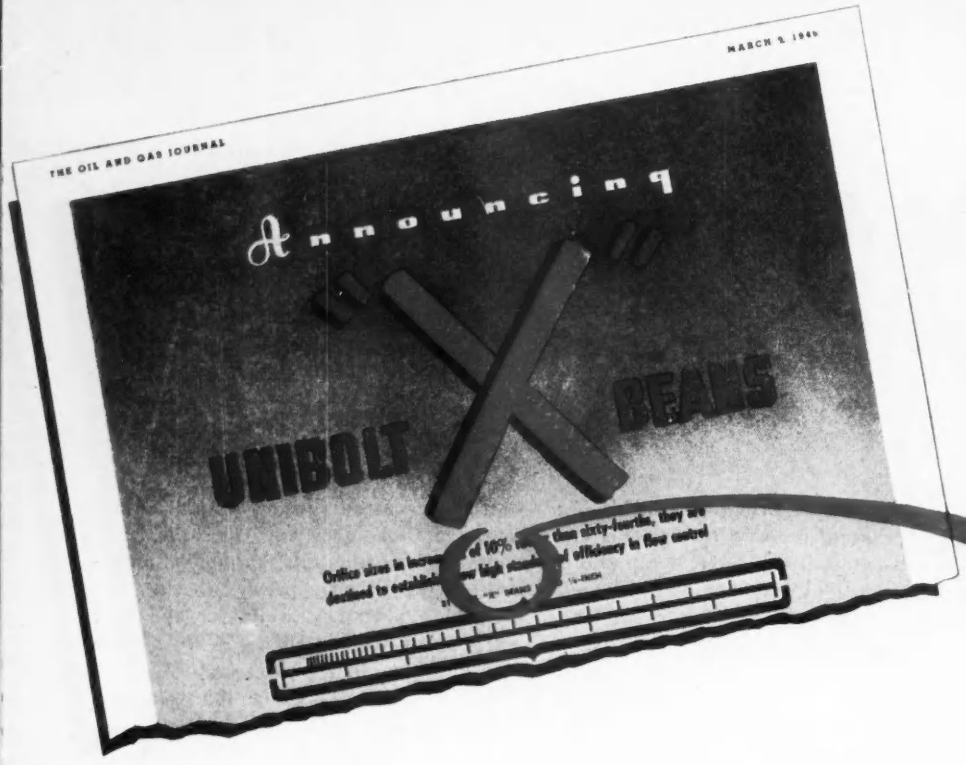
Although drilling in this year's first six months had to contend with crippling shortages of drill pipe and casing in many areas, records on exploratory and non-exploratory well completions showed increases over last year in each instance. However, the 13 percent lead held by exploration is somewhat greater than the 5 percent advantage now held by the overall drilling program, which includes both exploratory and non-exploratory operations. If already short supplies of tubular goods are not further tightened by steel or coal strikes, this year's exploratory completions should total 5000 or more for the first time, while all completions should approximate 32,000 to near prewar averages.

Total exploratory wells for the first six months amounted to 2381 against 2105 last year, an increase of 13.1 percent. Of this year's wells, 485 were successful against last year's 456, an increase of 6.4 percent. Although the producers increased in numbers, they could only account for 20.4 percent of

Results of Exploratory Drilling in June and First 6 Months, 1947-1946, By Districts

State or District	MONTH OF JUNE, 1947													FIRST SIX MONTHS, 1947																	
	Productive Tests										Unproductive Tests				Productive Tests									Unproductive Tests				Total Exploratory Tests	
	New Fields			New Pays			Extensions			Total Productive					New Fields			New Pays			Extensions			Total Productive						
	Oil	Gas	Dis.	Oil	Gas	Dis.	Oil	Gas	Dis.		Wildcats	New Pays	Outposts	Total Exploratory Tests	Oil	Gas	Dis.	Oil	Gas	Dis.	Oil	Gas	Dis.	6 Mo. 1947	6 Mo. 1946	Wildcats	New Pays	Outposts	Total Dry 6 Mo. 1947	Total Dry 6 Mo. 1946	6 Mo. 1947	6 Mo. 1946
Alabama											1			1												6			6	6	6	6
Arizona																															
Arkansas	1									1	1			2	2			2		1				5	3	25	1		26	20	31	23
California				1						1	26			27	3			3			3			9	18	130			130	121	139	139
Colorado											5			5	1						1			2	3	14		5	19	7	21	10
Florida											4			4											1	16			16	10	16	11
Georgia																										1			1	2	1	2
Illinois	7			8			3			18	31			49	19			32			12			64	41	168			168	217	232	258
Indiana											9			9	3			5			1			9	11	44			44	27	53	38
Kansas	3	1								4	39			43	24	7					1	1		33	45	156			156	114	198	159
Kentucky											5			5	2			1			1			4	10	32			32	36	36	46
Louisiana	1	3	1	1		1				7	21	1		29	8	4	4	12		10	2		1	41	43	102	3		105	91	146	134
N. Louisiana	1	1								2	16	1		19	3	1	1	1					1	7	12	60	3		63	55	70	67
S. Louisiana		2	1	1		1				5	5			10	5	3	3	11		10	2			34	31	42			42	36	76	67
Michigan		1					1			2	15			17	5	2					2			9	20	89	1	1	91	110	100	130
Mississippi											12			12		1		1			3			5	4	38			38	30	43	34
Missouri											2			2												9			9	7	9	7
Montana																					1			1	2	4	1		5	8	6	10
New Mexico											5			5	3	5					1	1		5	4	26	2		28	26	33	30
New York																														1		1
North Carolina																										1			1		1	
Ohio											3			3		1								1	20	26			26	19	27	39
Oklahoma	11									11	55			66	44	6	1	2			1			54	64	282			282	110	336	174
Oregon											1			1												1			1	2	1	2
Pennsylvania											1			1											2	1			1	2	1	4
Tennessee											1			1												9			9	2	9	2
Texas	14	6	1	10	2	3	1	1		38	120	3	6	167	75	16	14	76	13	14	18	4	6	236	153	640	18	21	679	668	915	821
Dist. 1 S. Central	2			1						3	9			12	6			1						7	5	60		1	61	42	68	47
Dist. 2 Middle Gulf		2		1	2					5	14		1	20	6	2	6	6	4	3	1			28	[1]	57		3	60	[1]	88	[1]
Dist. 3 Upper Gulf	1			3		2				6	10		1	17	9	3	5	8	4	6	4		3	42	37	69		2	71	68	113	105
Dist. 4 L. Gulf-S.W.	2	4	1	1		1				9	20		2	31	11	8	3	20	4	4	1	2	3	56	30	108		6	114	145	170	175
Dist. 5 E. Central								1		1	5			6				1			2	1		4	[2]	27	1	1	29	[2]	33	[2]
Dist. 6 Northeast	1			1						2	1			3	2	1		1		1				5	15	22	2	1	25	48	30	63
Dist. 7-B N. Central	3									3	20		1	24	17			16			1			34	[3]	110	4	1	115	[3]	149	[3]
Dist. 7-C W. Cent.	1									1	4			5	5						2			7	[4]	13	1	1	15	[4]	22	[4]
Dist. 8 West	2			2						4	12		1	17	6			10	1		3			20	26	54	4	5	63	78	83	104
Dist. 9 North	2			1			1			4	22	1		27	12	2		13			4			31	40	113	4		117	277	148	317
Dist. 10 Panhandle											3	2		5	1							1		2		7	2		9	10	11	10
Utah																									1	3			3	1	3	2
Washington																														1		1
West Virginia																1								1	3				5	1	8
Wyoming											2			2	2	1		2			1			6	8	12	3	5	20	5	26	13
Total U.S.	37	11	2	20	2	4	5	1		82	359	4	6	451	191	39	19	136	13	25	48	7	7	485	456	1835	29	32	1896	1649	2381	2105

[1] Dist. 2 included with Dist. 4. [2] Dist. 5 included with Dist. 6. [3] Dist. 7-B included with Dist. 9. [4] Dist. 7-C included with Dist. 8.



And now by Popular Demand

UNIBOLT X BEANS

IN INCREMENTS OF 5% OF WELL FLOW

. . . And 22 Additional Sizes Of Renewable Inserts Up To "X-40"

NOW, 72 SIZES OF CHOKES under ½-inch!

The immediate acceptance of UNIBOLT "X" BEANS attests to the long felt need for in-between-sizes of chokes to provide more precise control of well flow. Before the advent of UNIBOLT "X" BEANS, only 8 sizes of positive chokes, drilled in increments of 1/64", were available up to ⅛"—the most popular orifice range for producing under proration rules. This limitation in orifice selection posed a problem for production men for, as a general rule, a well will either over-produce or under produce on a standard 1/64" increment positive choke, and frequently it is impossible to obtain the most favorable gas/oil ratio.

UNIBOLT "X" BEANS, drilled in increments of 10% of well flow, and providing 31 orifice sizes below ⅛", were introduced approximately one year ago. And while this wide orifice selection provided precise flow control of most wells, it was found that an even smaller orifice increment would be still more desirable . . . particularly in the larger size range of "X-28" to "X-40." Special equipment has been obtained and a manufacturing technique developed to drill positive beans in increments of only 5% of well flow. These split orifice sizes are designated as "X-285," "X-29," "X-295," etc.

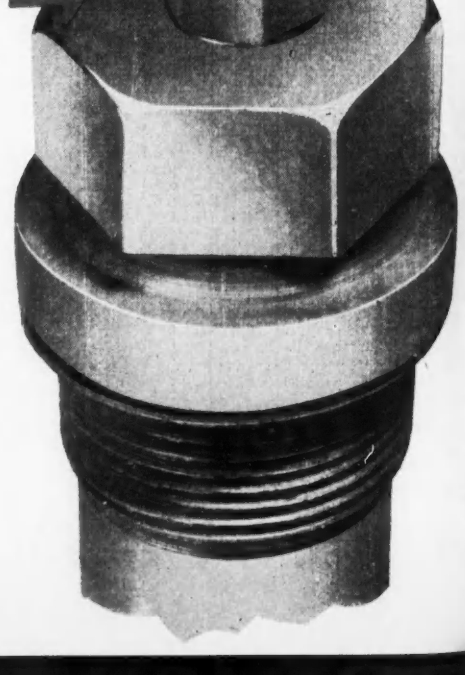
Now, as a result of numerous requests, UNIBOLT "X" BEAN INSERTS, which have proven so economical, are available in 52 sizes up to "X-40" (12/64").

THORNHILL-CRAVER COMPANY, INC.

HOUSTON, TEXAS

UNIBOLT

Replace the insert and save the bean. Inserts drilled in "X" sizes only, and up to size "X-40" (12/64").



UNIBOLT Positive Flow Beans are offered in fractional sizes (1/64" up) as well as "X" sizes (5% and 10% of well flow). They are machined to extremely close tolerances and properly heat-treated to assure long, trouble-free life.

Summary of Results of Exploratory Drilling

ITEM	June, 1947	May, 1947	Six Months: Jan.-June 1947	1946	Percent Diff.
Oil Discoveries	57	58	327	245	+ 33.5
New Fields	37	33	191	146	+ 30.8
New Pays	20	25	136	99	+ 41.1
Distillate Discoveries	6	10	44	35	+ 25.7
New Fields	2	6	19	16	+ 18.8
New Pays	4	4	25	19	+ 31.6
Gas Discoveries	13	7	52	67	— 22.4
New Fields	11	4	39	51	— 23.5
New Pays	2	3	13	16	— 18.8
Total Discoveries	76	75	423	347	+ 21.9
Extensions to Fields	6	12	62	109	— 43.1
Oil Fields	5	7	48	81	— 40.7
Distillate Fields		3	7	4	+ 75.0
Gas Fields	1	2	7	24	— 70.8
Total Prod. Tests	82	87	485	456	+ 6.4
Dry Holes	377	314	1,896	1,649	+ 15.0
Wildcats	367	305	1,835	1,610	+ 14.0
New Pays	4	4	29	24	+ 20.8
Outposts	6	5	32	15	+113.3
Total Expl'tory Tests	459	401	2,381	2,105	+ 13.1
Percent Productive	17.9	21.7	20.4	21.7	.....
Percent Dry	82.1	78.3	79.6	78.3	.....

the total, while last year's amounted to 21.7 percent of the overall.

Discoveries of new sources of oil increased from 245 last year to 327, a climb of 33.5 percent. These included 191 new fields against 146 and 136 new pay horizons in established fields to last year's 99. Extensions to oil fields, however, dropped from 81 last year to 48.

Distillate discoveries numbered 44 in the period compared to 35 a year ago. These were 19 new fields against 16 and 25 new pay horizons against 19. Distillate fields received seven extensions compared with four a year ago.

This year's gas discoveries were down in all categories from last year's six-month record. The current period yielded only 52 new gas finds to 67 for last year's like period. New fields were down from 51 to 39 and new pays dropped from 16 to 13. Gas field extensions decreased from 24 to seven.

Of the 2381 exploratory wells completed this year, 2084 or 87.5 percent, were strict wildcats, wells that were drilled in unproven territory. During last year's first half 1823, or 86.6 percent, were of this type. The remaining 297 and last year's 282 were attempts to find additional pay strata in established fields or to extend known production by a minimum of ½ mile. The results of the wildcatting ventures were 249 strikes, 11.9 percent of the total, this year against 213, or 11.7 percent, a year ago.

Exploration in Texas accounted for 915 wells in the six-month period. A year ago 821 had been drilled. Of these totals 236 were successful this year, while only 153 found production last year. This year's score includes finds of all types, but the most significant were the 75 new oil fileds and the 76 new oil pay strata.

New Oil, Distillate and Gas Fields and New Pay Horizons Discovered in the United States in June, 1947

Also Important Extensions to Established Fields

COUNTY	FIELD	COMPANY, WELL AND LOCATION	Date Spudded	Date Completed	Total Depth (Feet)	Completion Horizon (Feet)	[1]Name, Character and Age of Producing Formation	[2]Initial Production Method and Choke	Gravity of Oil	[3]Structure; [4]Method of Discovery	Tentative Evaluation of Discovery or Extension (Opinion of Relative Importance of Area from General Viewpoint of the Industry Based on Pertinent but Necessarily Incomplete Data: Later Development or More Complete Data Obviously Might Require Revision of this Tentative Opinion).
		ARKANSAS—New Oil Field									
Lafayette	.....	McAlester Fuel Co's C. Lee A-1, c ne sw 24-17s-24w	3-24-47	6-24-47	9086	9320-	Smackover li; Jur	F 110; ¾"	48.8	.....	.....
		CALIFORNIA—New Oil Pay									
Kern	Belgian Anticline	Texas Co's Tulare NTC-One 28, 28-30s-22e, ½ mi se of disc well	.....	6- -47	6548	6080- 6130	Point of Rocks sd	F 50; .5 mln; ¾"	43	.....	Other two wells in fld prod fr Oceanic sd.
		ILLINOIS—New Oil Fields									
Bond	Woburn, S.	Leo Horton's W. Kokoruda 1, sw se ne 21-6n-2w	5-30-47	6-30-47	3167	3151- 3165	Trenton li; Ord	P 70	....	.....	30 mi fr nearest Trenton prod, and first Trenton pl disc since 1942.
Clay	Iola, S.	Robinson & Puckett's B. Colclasure 1, ne nw ne 11-4n-5e	5-28-47	6-24-47	2703	2581- 2583	McClosky li; Miss	P 80; 40 wtr	....	.....	3½ mi s of Iola pool.
Edwards	Bone Gap, S.	Inland Producers' G. Harris 1, se se ne 19-1s-14w	5-11-47	6-10-47	3126	2712- 2715	Cypress sd; Miss	F 498; 80 wtr	....	.....	1¼ mi fr Bone Gap, Albion, and Browns pls. Offsets drilling.
Edwards	Massilon, S.	Magnolia's L. W. Wilson 1, ne ne sw 18-1s-10e	4-16-47	6- 3-47	3391	3313- 3322	Lwr O'Hara li; Miss	P 4; 1 wtr	....	.....	1½ mi se Massilon pl.
Lawrence	Helena	Fox & Fox's E. Bass (W. Madding) 1, se se nw 11-2n-13w	4-15-47	6-10-47	1803	1776- 1785	Waltersburg sd; Miss	P 12; 100 wtr	....	.....	3 mi fr nearest prod. Very small offset well comp.
Wabash	Berryville	British American's A. Higgins 1, nw nw nw 36-2n-14w	5-15-47	6-17-47	2903	2911- 2903	McClosky li; Miss	P&F 223	....	.....	2 mi fr nearest prod.
White	Centerville, N.	E. Held's C.&M. Endicott 1, 990s, 1080e, sw ne 28-3s-10e	4- 7-47	6-17-47	3233	2995- 3010	Bethel sd; Miss	P 38; 50 wtr	....	.....	1½ mi fr Centerville, E and Grayville W pls.
		ILLINOIS—New Oil Pays									
Lawrence	Russellville	H. A. Sprowls W. H. Benson 2 (OWDD), 1045n, 745w, nw, 18-4n-10w	.....	6-30-47	1570	1551- 1565	McClosky li; Miss	P 25; 100 wtr	....	.....	First oil well in pl producing shallow gas. Old gas well deepened.
Clinton	Shattuc	T. M. Conrey's E. Keister 2, sw sw nw 27-2n-1w	5-27-47	6-30-47	1438	1400- 1425	Paint Creek sd; Miss	P 44	....	.....	Previous production from Cypress.
Franklin	West Frankfort, S.	H. Ames et al's Thompson 1-A, 530 nl, 103 wl, nw 30-7s-3e	5- 9-47	6-30-47	2731	2703- 2727	Aux Vases sd; Miss	P 15	....	.....	Previous prod fr Tar Springs and Lwr O'Hara.
White	Roland	Sinclair Wyoming's C. D. Reddy 2 (OWWO), ne se se, 2-7s-8e	.....	6-24-47	2947	1972- 1984	Clore sd; Miss	P 26; 2 wtr	....	.....	Old well perforated. Previously prod. Waltersburg and Bethel.
Clay	Kenner	A. J. Slagter's C. Tackitt 1, sw sw sw 36-3n-5e	5-13-47	6-10-47	2987	2875- 2880	Rosiclare li; Miss	P 65; 2 wtr	....	.....	Deepest well in pool. Prod mainly Bethel. Also 1 mi ext.
Clay	Kenner, N.	National Assoc Pet's E. Spiker 1, se se se 12-3n-5e	5-13-47	6-17-47	2903	2779- 2800	Aux Vases sd; Miss	P 20; 20 wtr	....	.....	Also 1 mi nw ext to pl. Previous prod Bethel and McClosky.
Edwards	Albion, E.	Wm Bell's F. Fieber 1, ne se ne 31-2s-14w	5-24-47	6-30-47	3231	3126- 3134	Rosiclare li; Miss	P 42; 30 wtr	....	.....	Seventh pay in pool. Also 1 mi sw ext.
Lawrence	Beman, E.	S. Zanetis' Lindsay 1, 979 nl, 400 wl, sw sw 20-3n-10w	2-17-47	6-17-47	1907	1809- 1821 1860- 1868	Aux Vases sd; Miss Rosiclare li; Miss	P 2; 20 wtr	....	.....	Well found 2 new pays and extended prod ½ mi east.
		ILLINOIS—Oil Field Extensions									
Edwards	Bone Gap, S.	E. Witt's (Dee Miller Drlg.) F. S. Racster 1 (OWWO), sw sw se 18-1s-14w	.....	6-30-47	3191	3058- 3063	McClosky li; Miss	P 76; 15 wtr	....	.....	Old dry hole plugged back and perforated.
Richland	Bonpas	J. H. Gilliam et al's J. Provinces 1, nw ne nw 34-3n-14w	5- 7-47	6-17-47	3136	3124- 3136	McClosky li; Miss	P 30; 180 wtr	....	.....	¾ mi n ext.
Wayne	Clay City Consol.	Robinson & Puckett's D. Perardi "A" 1, se nw sw 17-1s-8e	5-10-47	6-30-47	3135	3113- 3125	Aux Vases sd; Miss	P 110	....	.....	One mi extension.
		KANSAS—New Oil Fields									
Rooks	.....	Harbar Drilling Co et al's Baldwin 1, (OWWO), cne ne se 9-10s-19w, 2½-mi w Voha pl	.....	6- 2-47	3771	3405- 3500	Lansing li; Penn	P 264	34	Ant; seis	Given potential of 773 bbls. daily.
Butler	.....	Ed Adair's Girod 1, se ne se 25-25s-4e, 1 mi s El Doardo pl	.....	6- 1-47	725	695- 725	Permian sd; Perm	P 12	....	Ant; dr	No importance.
Trego	.....	Continental Oil Co's Cotton 1, se se nw 14-12s-21w, 2 mi nw Ellis, NW pl	.....	6-25-47	3994	3942- 3994	Arbuckle li; Ord	P 125	....	Ant; dr	Revives old Cotton pl.

New Oil, Distillate and Gas Fields and New Pay Horizons Discovered in the United States in June, 1947

Also Important Extensions to Established Fields

COUNTY	FIELD	COMPANY, WELL AND LOCATION	Date Spudded	Date Completed	Total Depth (Feet)	Completion Horizon (Feet)	[1]Name, Character and Age of Producing Formation	[2]Initial Production Method and Choke	Gravity of Oil	[3]Structure: [4]Method of Discovery	Tentative Evaluation of Discovery or Extension (Opinion of Relative Importance of Area from General Viewpoint of the Industry Based on Pertinent but Necessarily Incomplete Data: Later Development or More Complete Data Obviously Might Require Revision of this Tentative Opinion).
		KANSAS—New Gas Field									
Barton		Kansas-Nebraska Natural Gas Co's Unruh 1, nw nw nw 16-20s-15w, 1 mi e Pawnee Rock, E. pl.		6-12-47	3763	3734- 3763	Arbuckle li; Ord	10.1 mln		Ant; dr	
		NORTH LOUISIANA—New Oil Field									
Union		Sellars, Ewing & Primos' Monzino-Rivers Lbr. Co. 1, 1650 fr nl 992 fr el 23-22n-1w.	5- 9-47	6- 4-47	3490	2135- 2156	Nacatoch sd; L Cre	F 103; 1/8"	29.4		
		NORTH LOUISIANA—New Gas Field									
Richland		C. H. Murphy Jr.-Sun Oil Co's Federal Ld Bnk 1, ne 10-17n-9e		6- -47	3405	3134- 3160	Clayton sd; Eoc	9.5 mln; open			
		SOUTH LOUISIANA—New Oil Pay									
Lafourche	Leeville Dome S flk.	Texas Co's R. R. Barrow 1, sw nw 35-21s-22e, 2300 s of prod	4-27-47	6-23-47	10061	9680		F 144; 1/8"	36.4		
		SOUTH LOUISIANA—New Distillate Field									
Assumption	Napoleonville S flk.	Crosby Drlg Corp's Clifton Ld Corp et al 1, nec 45-12w-13e, s flk of Dome	4-22-47	6- 6-47	5456	5368		F 5;2.5 mln; 1/4"	46.2		
		SOUTH LOUISIANA—New Distillate Pay									
Terrebonne	Houma	Union of Calif's J. C. Dupont 1, Sect 45-16s-17e, 1½ mi n gas-dist prod	2-20-47	4-29-47	12374	11930-11950		F 130; 6.5 mln; 1/4"	50.1		
		SOUTH LOUISIANA—New Gas Fields									
		Stanolind's Geo. J. McManus 1, nwc 20-15s-14w, Johnson's Bayou area	4-20-47	6-30-47	9637	4489- 4490		3.2 mln; 1/4"			
Cameron		Texas Co's State-Rabbit Island Lse 340-10, Atchafalaya Bay, 4 mi w of Bayou Sale fld.	12- 4-46	6-22-47	11919	10545-10568		F 5.5 mln; 1/4"			
Iberia											
		MICHIGAN—Oil Field Extension									
Newaygo	Kimball Lake	Scott Drilling Co's Mitchell 1, ne nw nw 24-12n-13w, 1½ se ext	5-27-47	6-16-47	2341	2335- 2341	Traverse li; Devo	F 800			Probably adds 1000 acs to field.
		MICHIGAN—New Gas Field									
Montcalm		Ashby O & G Co's Wilson 1, sw ne ne 6-10n-8w, 12 mi se Winfield gas fld	6-24-47	6-29-47	1088	1082- 1087	Michigan Stray sd; Miss	2.7 mln		Ant; geol	
		OKLAHOMA—New Oil Fields									
Garvin		Bauman Drilling Co's Myers 1, cnw nw 7-4n-3w, 1 mi se Lindsay E. pl		6- 3-47	10188	10025-10140	Bromide sd; Ord	P 225; 1/2"	44	Ant; seis	On trend of Lindsay area; may eventually link with Lindsay E. pl.
McClain		Sinclair Prairie Oil Co's Garrett 1, nw sw se 13-5n-2w, 1½ mi n Wayne, SW. pl		6-30-47	7970	6738- 6854	Hunton li; Devo-Sil	P 18	41.7	Possible Trap	No importance.
Osage		A. G. Oliphant's Osage 1, sw 1-25n-4e, 3 mi s Kaw pl		6- 5-47	3356	3294- 3316	Mississippi chat; Miss	P 75		Ant; dr	No major importance.
Seminole		Gem Oil Co's Rock 1, se se sw 32-6n-6e, 1 mi nw Tryola pl		6-11-47	3673	1996- 2006	Lwr Allen sd; Penn	P 40	38.4	Ant; dr	
Okfuskee		Charles Balph et al's Wells 1, sw ne se 12-11n-6e, 1 mi n Keokuk pl		6-17-47	2884	2697- 2884	Calvin sd; Penn	P 60	40.3	Ant; dr	Opens new production in old area.
Logan		Gulf Oil Corp's Bliss 1, se nw ne 26-17n-1e, 3 mi s Coyle pl		6-12-47	5193	3654- 3674	Layton sd; Penn	P 11; 125 wtr	47.6	Possible Trap; seis	Producing good gravity oil, but efforts to reduce wtr have failed.
Cotton		Benton Ross et al's Alexander 1, nw 7-5s-12w, 10 mi sw Cache Crk. pl		6-24-47	1572	1564- 1572	Pennsylvania sd; Penn	P 20	38	Str. trp; seis	Opens second production in twp, one mi w Ross, Dugan 1.
Creek		Seismograph Service Corp's Gibson 1, ne ne sw 26-15n-10e, near Slick pl		6-25-47	3017	3013- 3016	Misener sd; Penn	P 21; 5 wtr	38	Ant; dr	Of no importance.
Garvin		B & B Drlg Co's Pharoah 1, ne nw nw 15-3n-2w, 3 mi w Antioch, E. pl		6-27-47	6216	5563- 5594	Pennsylvania sd; Penn	F 250; 3/32"	42	Ant; seis	Opens good prod immediately w Antioch, E. pl; in "Golden Trend."
Lincoln		Sam A. King's Bledsoe 1, nw ne nw 11-13n-6e, 1 mi e Laffoon pl		6-28-47	2932	2924- 2932	Prue sd; Penn	F 10	38	Ant; dr	No importance.
Noble		Derby Oil Co et al's Weigle 1, ne ne se 2-21n-2w, 6 mi nw Perry		6-24-47	5135	5133- 5135	Second Wilcox sd; Ord	F 912	44.6	Ant; seis	Extremely good well; may prove 2nd pay zone fr Bartlesville sd.
		TEXAS DISTRICT 1 (SOUTH CENTRAL)—New Oil Fields									
Caldwell	Joilet	O. W. Killam's Andrew J. Rodenberg 2, 950 fr sel 2600 fr nel Guadalupe College Sur, 100-ac lse 6 mi s Lockhart.	5-10-47	6- 6-47	2173	2082	Austin ch; U. Cre	F 1,016; open			
McMullen	Little Alamo	Newman Bros.-Skinner & Eddy Corp's S. Tex. Synd. 1-B, 550 fr nl 1550 fr el E. M. Beal Sur 28.	6- 1-47	6-21-47	2293	2286- 2293	Queen City sd	P 48	18.3		
		TEXAS DISTRICT 1 (SOUTH CENTRAL)—New Oil Pay									
McMullen	Little Alamo	Newman Bros.-Skinner & Eddy Corp's S. Tex. Synd. 2-B, 1150 fr nl 2250 fr el E. M. Beal Sur 28-A on 5280-ac "B" Lse.	6-11-47	6-29-47	4084	4076- 4081	Carrizo sd; Eoc	F 127; 4/64"	28		
		TEXAS DISTRICT 2 (MIDDLE GULF COAST)—New Oil Pay									
Victoria	Bloomington	Amerada's Stubblefield 1, 750 fr sel 650 fr swl 40-ac unit, Francisco Perez Gr.	5- 3-47	6- 7-47	7517	5972- 5983		F 114; 4/64"	42.2		
		TEXAS DISTRICT 2 (MIDDLE GULF COAST)—New Gas Fields									
Victoria		Amerada's Eliz. Mueller 1, 1450 fr sel 13,300 fr swl Eli Stapp Lge, 115.73-ac Lse.		6- 2-47	9916	2872		1.6 mln; 3/8"			
Live Oak	Caronican	Henshaw Bros.-F. H. Smith's Walter Sipple 1, 1090 fr nel 530 fr nwl Blk 63, Kittie Sbdn, Michael Caronican Sur 35, ½ mi sw Kittie prod.	4-24-47	5-27-47	2808	1850- 1853		.3 mln; 1/8"			
		TEXAS DISTRICT 2 (MIDDLE GULF COAST)—New Gas Pays									
Live Oak	Caronican	Henshaw Bros.-E. H. Smith's Walter Sipple 2, 500 fr nwl 1050 fr nel Blk 63, Kittie Sbdn, M. Caronican Sur 35.	5-29-47	6-16-47	1620			.8 mln; 1/4"			
Calhoun	Matagorda Bay	Texas Co's State of Texas, Tr 118-1, 330 fr n&wl 640-ac Lse, Tr. 118, in Matagorda Bay.	5- 1-47	5-26-47	5371	4716- 4722	Miocene	40 mln; open			Shut in.
		TEXAS DISTRICT 3 (UPPER GULF COAST)—New Oil Field									
Hardin	Saratoga NW Flk	Falcon-Seaboard-Dunwoody's Sam F. Bashara 1, 330 fr sl 150 fr el 110-ac Tr., J. B. Reeves Sur.	4-14-47	6-10-47	7380	7310-		F 179; 3/32"	32.2		
		TEXAS DISTRICT 3 (UPPER GULF COAST)—New Oil Pays									
Hardin	Hampton	American Republics' Alex Hampton 3, 1139.2 w of wl Gus Hooks 30-ac Lse, in 3648.5-ac Lse, A. Hampton Lge.	5- 1-47	6-15-47	8170	7312	Deep "W" sd	F 97; 65 wtr; 3/32"	42.5		
Wharton	Pickett Ridge	Adrian Moore et al's Wilbeck 2, 330 fr swly/l 75-ac Tr, J. Teleferner Sur	6- 8-47	6-23-47	4854	4611- 4616		F 139; 19 wtr;	24		

Hardin	Hampton	**TEXAS DISTRICT 3 (UPPER GULF COAST)—New Oil Pays** American Republics' Alex Hampton 3, 1139.2 w of wl Gus Hooks 30-ac Lse, in 3648.5-ac Lse, A. Hampton Lge.	5- 1-47	6-15-47	8170	7312	Deep "W" sd	F 97; 65 wtr; 32/64"	42.5			
Wharton	Pickett Ridge	Adrian Moore et al's Wilbeck 2, 330 fr swly/l 75-ac Tr, J. Teleferner Sur.	6- 8-47	6-23-47	4854	4611- 4616		F 139; 19 wtr; 16/64"	24			
Hardin	Saratoga	Sun's John McShane 3, 1000 fr sly/sl 1600 fr sly/el 844-ac Lse, Hardin CSL Sur.	5-10-47	6-22-47	6537	4042- 4054		F 141; 8/32"	41.8			
Harris	San Jacinto	**TEXAS DISTRICT 3 (UPPER GULF COAST)—New Distillate Pays** Houston Oil of Texas' A. J. Elkins 1, 660 fr wl 6333 fr sl John Iiams Sur, 3½ mi off e flk Humble Dome.	5-17 47	6-20-47	8353	8334- 8342		F 53; 1.9 mln; 8/16"	64.5			
Orange	Vidor, N.	Gulf's Miller-Vidor Ld. Co. et al's 1, (OWWO) 875.8 fr wl 2662.7 fr nl J. M. Swisher Sur. 1.	3- 4-47	6-18-47	8010			F 99; 5.1 mln; 16/64"	50.1			
		TEXAS DISTRICT 4 (LOWER GULF-SOUTHWEST)—New Oil Fields										
Nueces		Curtis Singleton-W. H. Wallace's H. C. Mantor-R. C. Briggs 1, 990 fr sel 2310 fr nel Blk 16, Briggs & Kuykendall Sbdn, Casa Blanca Gr.	3-28-47	5-21-47	6687	4950- 4961 6016- 6021		No gge; 1/4" F 133.17; 8/32"	Dist 40.8			
Duval	Squire	Sta. Clara Oil Co.-J. F. Camp & Sons' J. F. Welder Hrs 1-C, 467 fr se & swl J. Poitevent Sur 221.	5-29-47	6-14-47	3277	3274- 3277	Govt. Wells sd; Eoc	F 105; 8/32"	24.8			
		TEXAS DISTRICT 4 (LOWER GULF-SOUTHWEST)—New Oil Pay										
Jim Wells	Haldeman, S.	Sunray Oil Corp's C. T. Hewitt C-1, 330 fr n&wl e½ Sect 51 R. P. Haldeman Sbdn Seeligson Rch, 320-ac Lse.	5-10-47	6- 3-47	6006	5135- 5155		F 216; 11/64"	45.7			
		TEXAS DISTRICT 4 (LOWER GULF-SOUTHWEST)—New Distillate Field										
Nueces		Pan American Prod. Co.-Jack Little, Tr.'s Loruth Smith Rivers 1, 1786 fr el 3106 fr nl Sect 26, Richard King Farm lots Subdn.	3- 1-47	4-18-47	6316	5528- 5539		F 20; 7.8 mln; open				
		TEXAS DISTRICT 4 (LOWER GULF-SOUTHWEST)—New Distillate Pay										
Nueces	King, N.	Rand Morgan's Fee 1-B, 330 fr el 3894 fr sl 320-ac Tr, Sec 7, Ragland Farm Trs, S. A. de Agua Dulce Gr.	4- 1-47	5- 2-47	5185	4978		No gge; 1.2 mln; 8/16"				
		TEXAS DISTRICT 4 (LOWER GULF-SOUTHWEST)—New Gas Fields										
San Patricio	Edroy	Southern Minerals Corp's M. O. McGloin 1, 1400 w of el San Patricio de Hibernia Gr.	5-10-47	6-16-47	6340			3.2 mln; 1/4"				
Duval		Rowden & Rowden et al's John W. Akin 2, 990 fr ne & nwl GB&CNGRR Sur 186 and of 221-ac Lse.	4-26-47	5- 8-47	2458	2443- 2447		8.5 mln; open				
Hidalgo		Texas Co's J. M. Doss 1, 660 w of el Xavier Zamora Proc. 41, 5 mi n ne Sullivan City.	3-10-47	6- -47	8906	3832- 3840		18 mln; open				
Zapata		J. O. Moss et al's Amelia O. de Vela et al 3, 930 fr swl 937 fr sel Blk 28, Sh. 3, 2628.7 ac Lse, El Grullo Gr.	5-17-47	6- 8-47	1155			No gge				Shut in.
		TEXAS DISTRICT 5 (EAST CENTRAL)—Gas Field Extension										
Freestone	Fairfield	The Texas Co's W. M. White 1, 1706 fr nsl 1900 fr wel of 204-ac Tr and Wm. King Sur. 6000 w by s of 8297-ft Travis Peak gasser,	3-19-46	6- 2-47	14332	4107- 4200	Woodbine sd; U. Cre	30 mln; open		Ant; geol		Second deepest test in district.
		TEXAS DISTRICT 6 (NORTHEAST)—New Oil Field										
San Augustine		M. E. Davis' W. A. Johnson 1, Edmund Quirk Sur. 6 mi n San Augustine	2-10-47	6-20-47	8975	8129	Pettit li; L. Cre	F 92; 8/64"	42.3			
		TEXAS DISTRICT 6 (NORTHEAST)—New Oil Pay										
Houston	Grapeland	Lone Star Prod Co's Dora Ritchey 1, 566 fr nw 1145 fr sw lines of 57-ac part of 132-ac Tr, or 2022 fr se 566 fr nw lines I. Grooms Sur.	5- 5-47	6-18-47	6048	5885- 5895	Sub-Clarksville sd; U. Cre	F 120; 1/4"	39.7	Dome; geol		First oil for area; confined to flks of large gas-dist Woodbine fld, possible nrw belt of oil pay.
		TEXAS DISTRICT 7-B (NORTH CENTRAL)—New Oil Fields										
Stephens		Lloyd Oil Co-J. A. McCarty & P. C. Coleman's Eugene Tipton 1, 4600 fr m/w/e and 6125 fr m/s/n lines of Nancy Williams Sur. A-920, 3½ se of shallow wells.	4-24-47	6-10-47	4713	4524- 4534	Mississippi li; Miss	F 208; 8/16"	42.5	Ant; geol		Small but attractive prod area, which is in sparsely explored sector of county.
Shackleford		E. E. Fogelson and M. S. Ingleright's Lones 1, c se ne T&P Ry. 64, Blk 11, adj to shallow gassers.	9- 2-46	6- 2-47	4336	3061- 3078	Strawn sd; Penn	P 132	44	Ant; geol		Potential included accumulated fluid, as output dropped to 35 bbls shortly.
Throck-morton		Jas. H. Snwoden et al's Bailes-Parmenter-Jones Unit 1, 440 fr snl 2550 fr wel BBB&C Ry 296, 2⅝ mi nw McKnight fld.	5-18-47	6-19-47	4245	4226- 4245	Bend li; Penn	F 935; ½"	41	Ant; geop		Unusually prolific, although small in area.
		TEXAS DISTRICT 7-C (WEST CENTRAL)—New Oil Field										
Crockett		Cities Service Oil Co.-Humble & Plymouth Oil Co's J. W. Owens 1-B, 1994 fr snl 670 fr ewl H&OB 6, Blk GG, 1¼ mi nw Clara Couch fld.	12-26-46	6-25-47	8264	5670- 5675	Crinoidal li; Penn	F 597; ½"	39.5	Ant; geop-geol		Involves large structure; prolific oil and gas fl during blowout while drlg Crinoidal discounted by structurally low offsets. Ellenburger due to produce near apex of struct.
		TEXAS DISTRICT 8 (WEST)—New Oil Fields										
Gaines		Cities Service Oil Co's T. S. Riley 1, c ne ne Sect. 361, Blk G, CCSD&RGNG Ry. Sur. 4½ mi nw of prod.	12-24-46	6-10-47	7251	7045- 7237	Clear Fork li; Perm	P 42; 8 wtr	33.1	Ant; geol		Larger prod indicated during early stages of completion. Short-term leases will force outlying development.
Mitchell		Tobe Foster et al's R. S. Brennand-Standard of Tex. 1, ne nw ne T&P Ry. 4, Blk. 28. T-1-N, 1¾ mi s Coleman Ranch fld, but separated by failure; 2 mi w of n end Westbrook fld.	3- 3-47	5-20-47	2885	2601- 2775	Clear Fork li; Perm	P 55; 6 wtr	25.3	Ant; geol		Small productive area.
		TEXAS DISTRICT 8 (WEST)—New Oil Pays										
Andrews	Fullerton-Devonian-(North)	Texas Pacific Coal & Oil Co's Emily Jackson 14-D, 810 fr snl 660 fr ewl PSL 17, Blk A-32, offsetting Clear Fork & Ellenburger wells; 4¼ mi n of Devonian prod.	11-11-46	6- 5-47	10534	8120- 8290	Devonian li; Devo	F 1422; ½"	44	Ant; geol		Small Devonian producing area, involving "peaked" structure; above normal crude yld per ac.
Ector	Andecter-Clear Fork	Plymouth Oil Co's R. B. Cowden 3-A-12, 2202 fr nl 2258 fr ewl T&P Ry. 12, Blk 5, T-2-N, twin to Ellenburger well.	5- 9-47	6-24-47	6285	6200- 6285	Clear Fork (Tubb) li; Perm	F 168; 1/4"	39	Ant; geol		This upper zn indicated by most Ellenburger wells, and will be drilled up.
		TEXAS DISTRICT 9 (NORTH)—New Oil Fields										
Archer		J. C. Man, Jr. et al's D. M. Harris 1-75, 1250 fr snl 750 fr ewl Blk 75, J. W. Harris Sbdn.	4-26-47	5- 2-47	1346	1338- 1346	Cisco sd; Perm	P 4	39	Ant; geol		Nearby failures discount importance of area.
Clay		Phillips Pet. Co's Bryant Edwards-"Bryant" 1, 1624 fr snl 2333 fr wel of B. Reddiow Sur. 45, A-971 1½ mi sw Bryant Edward fld, and isolated by failures.	4- 5-47	6-29-47	6449	6118- 6138	Bend li; Penn	F 590; 8/16"	45.7	Ant; geol		More effective pay in Bend limey-cgl at 6071-80 that yielded oil fl thru testing tool. Small prod area.
		TEXAS DISTRICT 9 (NORTH)—New Oil Pay										
Jack	Bryson	Ashland O & R Co's Henderson 1, 3710 fr wel 2050 fr nsl of I. Hughson Sur. A-256,	4-29-47	6- 3-47	3275	3261- 3275	Strawn sd; Penn	F 94 ; 1/4"	40	Ant; geol		Pay is stray lenticular sd that will be erratic in performance.
		TEXAS DISTRICT 9 (NORTH)—Oil Field Extension										
Young	Burns-Benson	Cato Oil Co's G. B. Hamilton 1-A, 467 fr snl 660 fr wel Sect. 1393, TE&L Co. Sur., 1 mi s ext.	5- 1-47	6- 6-47	4600	4550- 4559	Bend li; Penn	F 109; 8/16"		Ant; geol		Structurally low to nearest deep producer; intermediate acreage considered proved for Bend prod.

[1] Character of producing formations abbreviated thus: ch, chalk; dolo, dolomite; li, limestone; sd, sandstone; sh, shale; ser, serpentine; cgl, conglomerate. Ages of formations abbreviated thus: Pleis, Pleiocene; Plio, Pliocene; Mio, Miocene; Olig, Oligocene; Eoc, Eocene; U. Cre, Upper Cretaceous; L. Cre, Lower Cretaceous; Jur, Jurassic; Tri, Triassic; Perm, Permian; Penn, Pennsylvanian; U. Miss, Upper Mississippian; L. Miss, Lower Mississippian; Devo, Devonian; Sil, Silurian; Ord, Ordovician; Cam, Cambrian.

[2] Barrels of oil per day (24 hr. rate), flowing (F), pumping (P), swabbing (Sw), or bailing (B); or million cubic feet of gas daily open flow capacity; size of choke given in inches.

[3] Type structure abbreviated as follows. Ant, Anticline; D, Dome; Fld, Fold or Folded; Flt, Fault or Faulted; M, Monocline; N, Nose; SD, Salt Dome; Str trp, Stratigraphic trap; Syn, Syncline; Ter, Terrace.

[4] Method of discovery abbreviated as follows cd, core drilling; dr, drilling; geol, geology; geop, geophysics; grv, gravity meter ran dr, random drilling; seis, seismograph; sub, subsurface geology; sur, surface geology; tb, torsion balance.

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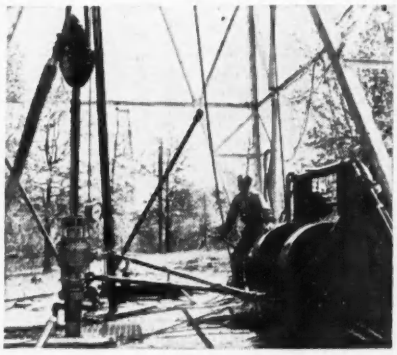

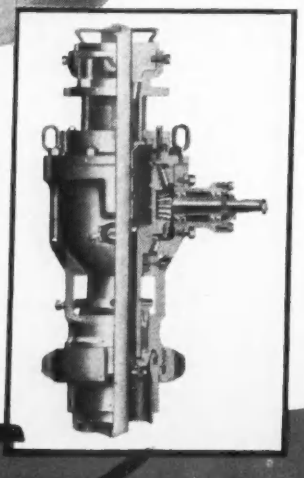

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Free Pump

SPEEDS DRILLING and SEATING

By GILBERT M. WILSON, Staff Writer

HYDRAULICALLY surfacing and seating the pump in a producing well in a matter of only an hour or two, simply by operation of a convenient four-way valve and without the use of conventional pulling equipment or other tools, is a recent important development in oil field pumping technique. Labeled the "Free Pump" by its manufacturer, the device embodies many features which should reduce considerably the expenses normally encountered in pulling and servicing a pumping well. It is estimated that through its use the savings in operating cost on a typical pumping well will amount to 25 to 30 percent.

The new pump differs only slightly from the conventional deep-well hydraulic pump presently in use on numerous installations, the chief difference lying in the manner of installation and the arrangement of tubing-macaroni strings in the well. Three types or combinations of the latter are possible, the selection of each depending upon casing conditions and the operator's choice. Most important change on the pump itself is the addition of a nose packer assembly which is used as a means of circulating, or raising and lowering the pump unit. The bottom shoe has been altered slightly in order to facilitate its being seated above the standing valve using hydraulic pressure. An "O" ring in the body of the pump and located slightly below the cup-type packer, seals the pump in the operating position, preventing power fluid from going on down between the pump and tubing and forcing it to enter the pump to operate the fluid powered engine. The pump itself consists of a hydraulically-actuated engine end and pump end, both housed in a long stainless steel barrel. Figure 1 shows the pump as it appears on removal from the well.

Existing hydraulic deep well pump equipment is not made obsolete by the new development of free pumping, since only slight modifications are necessary to convert an older pump for use in free-type pumping. Conventional installations can be made with the intent of later converting them to free pumping.

The free pump may be run in any of three types of well installations: (1) parallel; (2) concentric; and (3) the casing type system. In the parallel system two parallel strings of tubing are run into the hole to form a closed "U" circuit. Depending upon the size pump used and the amount of cross-sectional area available in the well, these strings may be made up of a two- or 2½-inch power oil string, and a parallel production string of one- or 1¼-inch tubing. The two strings are run into the hole simultaneously and are held solidly together by specially designed clamps. Figure 2 illustrates this type of clamp which requires the taking up of only one nut. The strings are joined together at the bottom in a shoe housing containing a standing valve assembly, the latter retrievable by a fishing tool that can be lowered on a small wire line.

Concentric System

The concentric system operates on the same principle as the parallel system but instead of two parallel strings clamped together, the smaller string is run inside the larger. The inner string is the power tubing with the pump seated on bottom. The annulus between this inner string and the outer string of tubing forms the other leg of the U-tube. This system is particularly desirable for deep settings and for followup in the decline of large wells, where the installed production tubing is large enough to accommodate the system. In areas where paraffin trouble is experienced, the parallel system offers a better means of control with the soluble plug method inasmuch as both strings are full bore. In the concentric system, the production leg, or annulus between the two strings, presents a problem, as a suitable hydraulic lift for treatment of the annulus has not yet been developed.

The third system is the casing-type installation. This is similar to the concentric system and represents the extreme in simplicity and economy for only one string of tubing is required. The power oil string, in which the pump operates, is anchored in a packer shoe in the casing. Power oil is delivered to the pump through the tubing and exhausted power oil, plus production oil, are returned to the surface in the annulus between tubing and casing. This system is applicable in those cases where gas and other conditions allow casing type pumping. The sketches in Figure 3 show the principal features of the concentric and casing type installations.

Figure 1. The two-inch free pump being examined by the pumper has just been surfaced from its 5000-foot setting. Visible at the top are the cup type packer elements which provide the lifting area needed to circulate the pump up or down the tubing. The jaws of the catcher device, still holding the pointed end of the pump fitting, also are visible on the under side of the tubing cover.

One-Man Operation

In all three systems the operation of the pump in the power tubing is the same. Figure 4 illustrates diagrammatically the principal stages involved in the seating and surfacing of a parallel free-pump installation. At the surface connection there is a four-way valve, the operation of which controls the entire cycle of pumping-in, seating, unseating and bringing the unit to the surface. In running in the pump, the four-way valve is allowed to remain in the "shut-

Figure 2. In the parallel type installation, the above type clamp, operated by only a single nut, holds the power tubing (left) and production tubing (right) together firmly, the two strings being lowered into the well simultaneously.

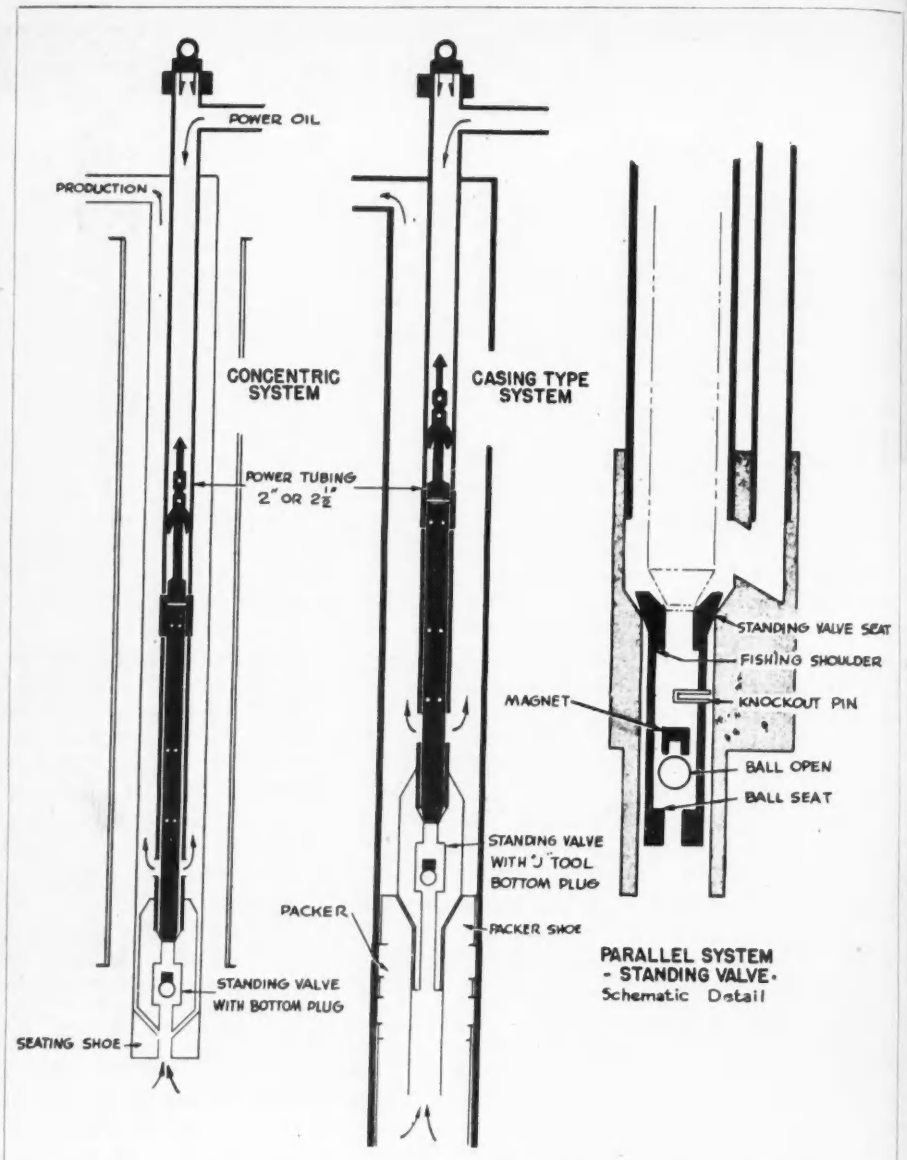

Figure 3. Principal features of the concentric and casing type free pump installations. At right is enlarged cross section of standing valve assembly as used in parallel system.

off and bleed" position, and the pump is dropped into the tubing. It is prevented from falling freely by the fact that the tubing is full of oil. It is pushed down a few inches below the top of the four-way valve, and the pump catcher cover then locked in place. The valve is turned to the "pump in" position, directing power oil down the power tubing and forcing the pump toward the bottom and its final seating position. As soon as the pump reaches bottom, it seats and the pressure immediately starts to operate the pump. The "O" ring near the upper end of the pump assembly forms a seal in the packer collar indicated in drawings in Figure 4, and preventing power oil from bypassing around the pump-tubing annulus. This seal remains tight until the pump is to be brought to the surface.

The pumper is able to tell when the pump reaches bottom simply by noting the pressure at the surface gauge on the four-way valve; also by noting the slight but regular movement of the gauge needle, the latter indicating the strokes of the pump. In the standing valve assembly the valve ball remains off the seat during normal operation of the pump, this being accomplished by a small permanent magnet which holds the ball off seat except when the pump is being surfaced or pumped down, and at which time the quick rush of fluid through the standing valve overcomes the magnetic force and causes the ball to drop into its seat. Much wear on the standing valve parts thus is avoided, considerably lengthening the life of that equipment.

To surface the pump, the four-way valve handle is turned to the "pump-out" position. This action reverses the flow of the power oil and directs it down the production tubing and against the under side of the pump. The hydraulic pressure is against the full pump area, minus the area of the bottom plug, which is open to the formation pressure through the standing valve. Above the pump, the fluid column in the power tubing exerts pressure on the full area of the pump body. This constitutes the only pressure differential that must be overcome to unseat the pump. The pressure buildup required to accomplish the unseating may reach as high as 850 pounds per square inch. However, once the ball check in the standing valve is forced away from the magnet and onto its seat, the pressure required to lift the pump drops considerably, for the full area of the pump packer becomes an effective lifting area.

Time required to surface a pump varies according to depth of pump setting and fluid pressure applied. However, on a 5000-foot well, the average time required to surface the unit is around 55 minutes, or a velocity of approximately 100 feet per minute. About 40 minutes are required to reseat it.

Upon reaching the surface, the pointed nose of the pump is caught in the spring-

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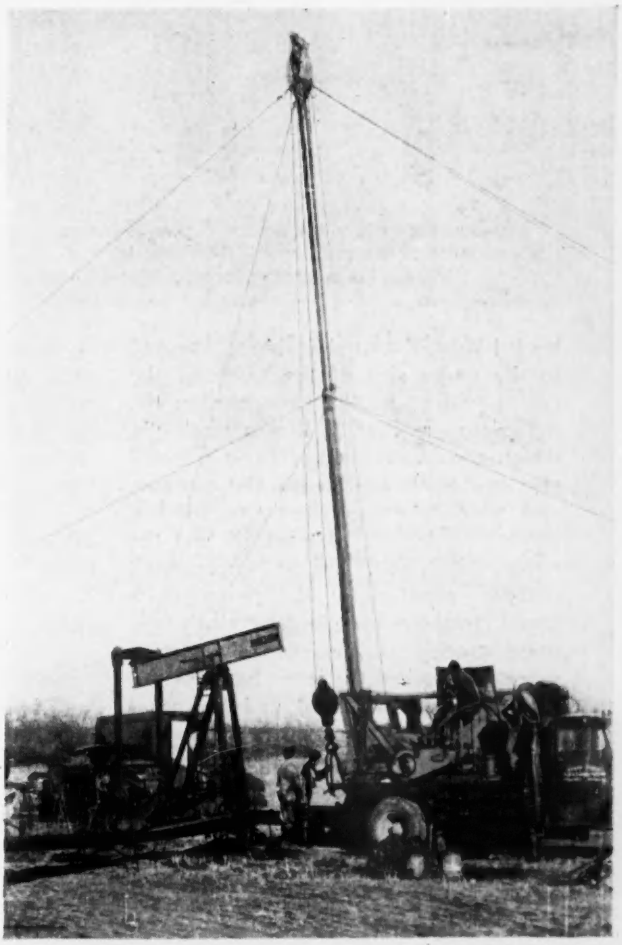
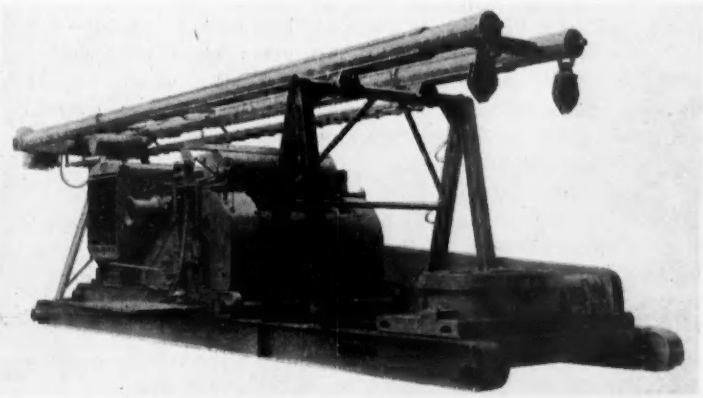


Model H single drum servicing hoist with 48-foot telescoping mast. Cross sheave crown permits block to travel three feet higher than when sheaves are mounted in line. 48- or 55-foot masts are available with cross sheave crown or with three sheaves mounted in line. Mast can be easily removed for derrick operations. Hoist is shown pulling rods and tubing from 3,910-foot well.



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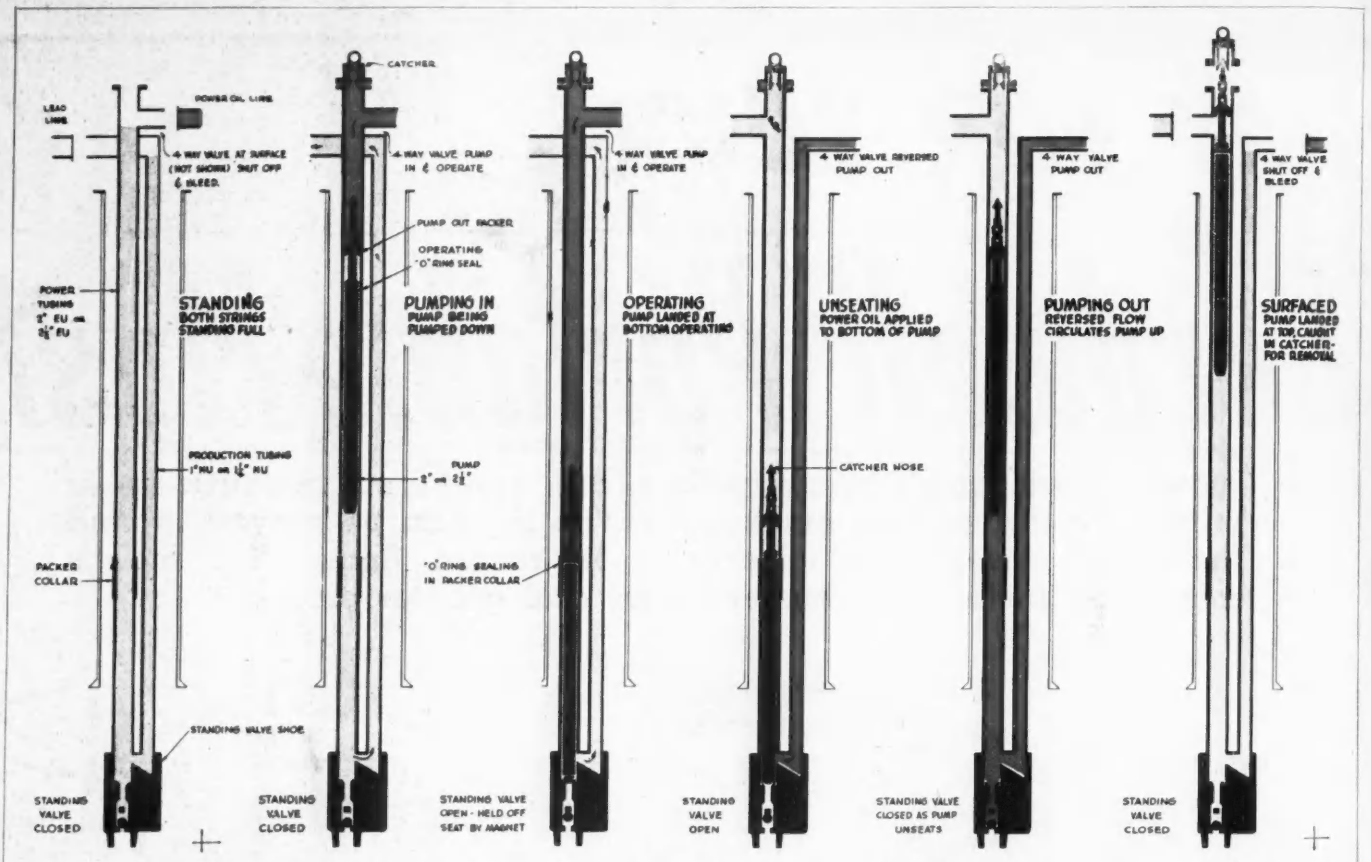
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4 WAY VALVE PUMP IN & OPERATE
4 WAY VALVE PUMP IN & OPERATE
4 WAY VALVE REVERSED PUMP OUT
4 WAY VALVE PUMP OUT
4 WAY VALVE SHUT OFF & BLEED
PUMP OUT PACKER
OPERATING "O" RING SEAL
POWER TUBING 2" EU on 2½" EU
STANDING
BOTH STRINGS STANDING FULL
PUMPING IN
PUMP BEING PUMPED DOWN
OPERATING
PUMP LANDED AT BOTTOM OPERATING
UNSEATING
POWER OIL APPLIED TO BOTTOM OF PUMP
PUMPING OUT
REVERSED FLOW CIRCULATES PUMP UP
SURFACED
PUMP LANDED AT TOP, CAUGHT IN CATCHER FOR REMOVAL
PRODUCTION TUBING 1" NU on 1½" NU
PUMP 2" on 2½"
CATCHER HOSE
PACKER COLLAR
"O" RING SEALING IN PACKER COLLAR
STANDING VALVE SHOE
STANDING VALVE CLOSED
STANDING VALVE CLOSED
STANDING VALVE OPEN - HELD OFF SEAT BY MAGNET
STANDING VALVE OPEN
STANDING VALVE CLOSED AS PUMP UNSEATS
STANDING VALVE CLOSED

Figure 4. Shown in diagrammatic fashion are the several stages involved in the seating and surfacing of a pump in the parallel type of installation, which more clearly illustrates the various operations. Note arrows indicating direction of flow in the two strings; also, the action of the magnet in the standing valve assembly which holds the ball off its seat during normal pumping operations.

loaded jaws of a catcher device attached to the under side of the cover of the power tubing. As the pump strikes the top of the catcher, it lifts a small pin which then becomes visible in a small aperture easily visible to the pumper, and which signifies that the tubing catcher cover may be taken off and the pump lifted out. To an experienced pumper, progress of the pump as it travels to the surface is determinable by using a stick or iron rod as a stethoscope, one end of the latter being placed against the tubing head and the other against his ear. The clicking of the pump as the packer elements pass each tubing joint is clearly heard.

With the pump at the surface, pressure must be bled from the two strings of tubing. This is done by turning the four-way valve to the "shutoff and bleed" position. The pump catcher, which cannot be turned or removed under pressure, then turns freely, a ⅛-inch turn unlocking it and permitting the pump to be lifted out. Rubber wipers in the four-way valve wipe off the surplus oil as the pump comes out of the tubing.

Any convenient system may be employed for lifting the pump out of the tubing, but the one devised and used by the pumper of one major company serves the purpose nicely and consists of a telescoping mast constructed of several lengths of light tubing, with block and tackle suspended from a short overhanging arm at the top. The bottom section is allowed to remain standing beside the well head, but the two upper sections may be telescoped together and carried in the service truck for installation at other similarly-equipped wells. Total height of the unit when fully extended is approximately 12 feet.

Reduced Pumping Costs

Pulling and rerunning a pump in a well by only one man, and in a period of time less than it takes to rig up a pulling unit, opens up numerous possibilities in the prolonging of the profitable life of a well. Marginal wells, so classified because of low productive capacity or because of some sub-surface problem characteristic of a particular field or area, can once more become profitable to operate, largely through the savings realized in greatly lowering of pulling costs. When a pump needs to be surfaced for examination or replacement, the pumper merely turns the valve at the well head, goes about his duties elsewhere, and returns in about an hour to remove the surfaced pump. In reseating the unit, he lowers it into the tubing, replaces the cover, turns the power into the tubing and leaves the well, knowing that the pump will commence operating the moment it seats itself on bottom. Producing wells located in swamp land or over-water locations, and which normally require the use of barges for carrying in pulling equipment, represent but one example of cases where this new type pumping might be employed in reducing lifting costs.

By eliminating well pulling, downtime, and the expense and time involved in a conventional pulling job, the free pump makes it possible to keep subsurface equipment more closely adjusted to changing bottom-hole conditions. For example, in areas where the production is declining rapidly, smaller capacity pumps may do the job more economically, permitting the larger pumps to be shifted to wells having larger volumes of fluid to lift. Within the limits of the particular power tubing size, there are various sizes of pumps available, and because of the negligible expense connected with exchanging of a pump, it becomes more desirable and profitable to determine exactly the optimum size pump for a particular well.

The free pump has been tested for eight years in laboratory and under nearly every type of operating condition, both in Mid-Continent and California fields, and has demonstrated that a substantial lowering of lifting costs and consequent prolonging of profitable producing life is possible.

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An illustrated bulletin on Cameron Type "F" Well Heads and Flow Wings is now available and will gladly be sent to interested operators on request.

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Slime and Algae Control In Oil Field Flood Water

ALGAE are extremely small, simple forms of plant life. Although not visible to the naked eye, microscopic examination reveals the protoplasm, or nucleus of the plant cells, enclosed in blue, yellow or green cell walls. There are various species of algae, the single cells of which are usually combined to form large masses, although on many occasions they are seen as stringy chain formations attached to pipe walls, stones in streams, or any other solid surface with which algae contaminated water comes in contact. Some types of algae float. These form the scum seen on still water surfaces.

Upon examination of water containing algae an offensive odor is detectable due to oils secreted by the algae growth. Inasmuch as a variance of certain factors such as temperature and light affect the rate of growth of the different algae types, the strength and characteristic of the odor imparted by these secreted oils vary accordingly. This variance in rate of growth is very important if such water is being used for flooding purposes in that only a few days, or weeks, usage of highly contaminated water may clog filters, build up a deposit in pipe line distribution systems or partially clog the sand around the input well bores.

Concerning treatment of a fresh water supply to be used for flooding purposes, it may be seen that it is mechanically impossible to consider cleaning of the slime and algae deposits from surfaces, due to the relative inaccessiblity of interior pipe surfaces, input well bores, and the interior of the various pieces of equipment that flood water passes through in the average project.

Some industries which use appreciable quantities of water eliminate deposits by physical or mechanical cleaning methods, and control the detrimental effect of the deposit by these periodic cleanouts alone. These methods have only limited success.

Curbing Deposits

In other cases, equipment may be designed to prohibit or limit deposits by keeping light away from the water (algae will not grow in the dark) or create high velocity, turbulent flow. In addition, the periodic circulation of hot water, application of electric current or other means to prevent growth or dislodge deposits is successfully used. It must be remembered in considering any form of treatment for water flooding, that despite the extremely small size of algae and slime micro-organisms, they are capable of rapid multiplication and the complete elimination of the life is the only continuously dependable method of control.

The predominant method of control, both from an economic and result viewpoint, is chemical.

An important item to remember in making the chemical selection is the possibility of the water being consumed by humans or animals after the chemical treatment, with possible toxic effect.

Copper sulfate is widely used for this purpose in that it presents no particular hazards in its use. It may be fed in solution or solid form and is very soluble in water. However, it is very corrosive to steel and iron, regardless of solution strength, and the feeding equipment must be designed accordingly. If a highly alkaline flood water is being used, copper salts are ineffective since the copper is precipitated out as a hydroxide and as this method of treatment derives its toxicity from the copper ion, it is rendered inactive. The hydroxide precipitate will only aggravate the deposit condition.

Normal algae killing dosage of this chemical varies up to about ten ppm, or so. Although it is problematical as to just what concentration would have injurious effects on a human being, it is known that fish cannot exist in water having a concentration of more than 2 ppm.

Copper chloride and nitrate are also suited to this type of treatment since the copper ion furnishes the toxicity necessary to kill the algae.

Chlorine in itself is very hazardous to handle in concentrated form, although equipment is available which greatly reduces the handling hazard. The cost of liquid chlorine is fairly reasonable; however, the cost of the feeding equipment mentioned makes its use questionable for the average water-flood plant.

Approximately 0.5 ppm residual concentration will effectively kill most objectionable organisms.

Hydrochloric and hypochlorous acid are formed when the chlorine and water are mixed. The residual chlorine combines with the organisms to give toxic compounds. This eventually causes death of the algae and slime, since the toxic compounds formed by the chlorine reaction prohibit cell division.

Control of chlorine feeding, excluding economics of treatment, is relatively simple, insofar as possible overdosage is concerned, due to the fact that only the live organisms will react with the chlorine and the excess will evaporate to the atmosphere. It is readily detectable by taste or odor.

Sodium pentachlorphenate, the sodium salt of a chlorinated phenol, is a synthetic organic algaecide which has proven effective in algae treatment. It is stable in highly alkaline water, which renders copper salts useless and reduces the effectiveness of chlorine. A concentration of 15 to 30 ppm usually gives effective control.

Toxic to Humans

This chemical is very effective insofar as its ease of handling and feeding and its action on algae growths are concerned; however, it cannot be consumed by humans due to its toxicity to them.

Chloramines, usually a combination of monochloramine and dichloramine, were developed for algae control due to the fact that when chlorine is used, and the acids are formed when it reacts with water, oxygen is released which acts on all oxidizable matter. It can be seen that in many cases this is not desirable, so chloramines were tried. Thus, the toxic qualities of the chlorine treatment were available, but the oxidizing action was suppressed. The process consists of feeding ammonia and chlorine together in the proper amounts to form the chloramines.

For algae control alone, the ammonia is usually fed ahead of the chlorine. Care must be exercised to prevent an overdose of ammonia, which greatly reduces the toxic effect of this combination type treatment. This method, however, may be more economical in the overall picture than a straight chlorine treatment, due to the smaller quantities of chemicals required.

The foregoing represents the overall picture of slime and algae control. Although water-flooding operations require algae and slime elimination to a degree equal to or exceeding most other industries, it is unfortunate that due to the size of the plant and other factors it is not considered feasible to consider the more complicated methods in the average water flood plant. This can be accomplished effectively only by chemical treatment. Provided the water characteristics are such to permit it, copper sulfate should be seriously considered for the job.

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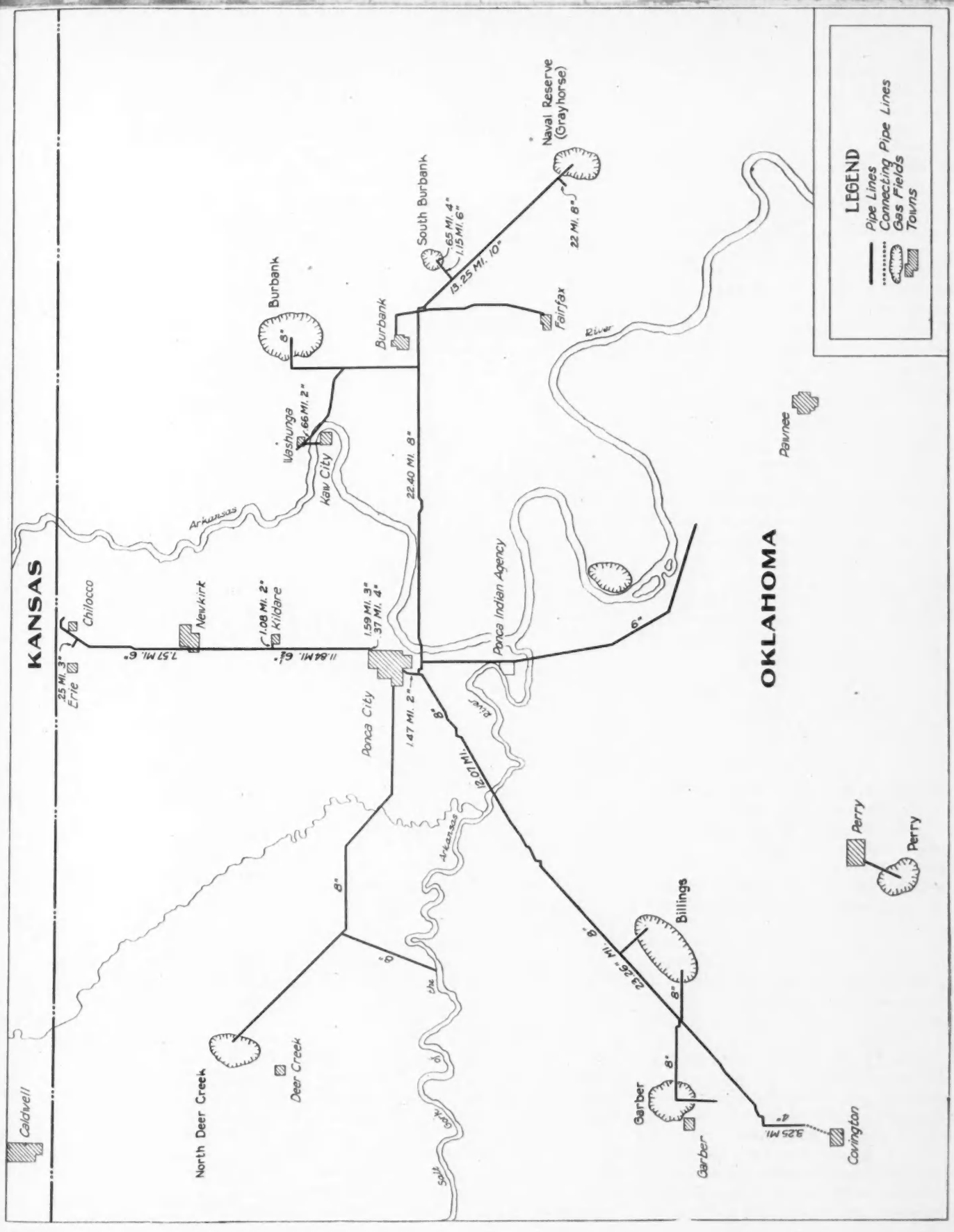

THE question of a U. S. national oil policy effects the American domestic operator and the American oil operator abroad, alike. It affects the stockholders, the officers, and every other employe.

What happens in oil in the U. S. A. affects operations abroad. What happens abroad affects the purely domestic operator.

That is why we are presenting herewith the final report of the U. S. Senate committee (O'Mahoney Committee). If you are in the oil business you ought to read it. The footnote comments are our own.

Recommendations on U. S. National Oil Policy

Part 3

TOO little understood is the place in our modern economy occupied by the American oil companies operating abroad. They have achieved by their initiative a dominant position in foreign commerce, a position which is maintained, upon the one hand, by contracts, concessions, and understandings with various governments and, upon the other hand, by the routine functions of trade in the refining and distribution of their products. These companies have, therefore, an impact both in the political and in the economic sphere.

In the political sphere, they have relations not only with the governments of the countries where petroleum is produced, but with the governments of the countries where petroleum products are sold and where, not infrequently, the object of the foreign government is to establish some form of state monopoly or cartel by which the course of commerce in petroleum will be guided as the government may desire. Then, too, these companies have relations with the government of the United States, whereby they endeavor to keep the Department of State advised as to their current activities and programs to the end that the same will not be contrary to American foreign policy and that the companies will be in a position to request prompt diplomatic protection when necessary.

In the economic sphere, the foreign operations of American oil companies constitute a major factor in world trade. These operations, moreover, are not a thing apart from the domestic oil industry—indeed, they are closely meshed with it. The companies which engage in foreign operations do so as a part of their over-all activity, either directly or through subsidiaries and affiliates. Hence, the financial position of the companies is strengthened by the profits of world trade, thereby benefiting directly hundreds of thousands of stockholders including over 42,000 banks, 700 insurance companies, and 3700 charitable or educational institutions.

Practically all oil imported into the United States is produced by American companies, and, of course, a goodly portion of the purchase price eventually finds its way to American stockholders. The United States Treasury also receives large sums in duties and income taxes arising from these foreign operations. The purchase in this country of drilling machines, pipe lines, and refinery equipment for foreign installation involves an annual expenditure of many millions of dollars. Moreover, it is urged frequently that the increased purchasing power of the foreign oil-producing countries, all of which benefit economically from the American pioneer who so often has been the first to tap the underground resources of distant regions, is reflected in increased exports from the United States in response to the stimulated demand for American-made goods.

There is, however, another side of the picture. The American companies which possess the financial resources to enable them to operate abroad and to sit across the bargaining-table from monarchs and foreign diplomats are few in nunmber, but they heavily outweigh in the scope of their operations the hundreds of small companies which function independently in the domestic oil industry. These "independent" companies look with considerable apprehension toward the threat of oil imports into the United States by the comparatively few American corporations operating abroad which control a vast productive potential.

In 1938, before the magnitude of the Middle Eastern oil resources was generally comprehended, South American oil moved into Europe, to a large extent through the instrumentality of American companies, at the rate of 298,000 barrels daily. In addition, 188,000 barrels daily were exported from South America to the United States. At that time Europe imported oil from Iran and Iraq at the rate of only 171,000 barrels daily. Now, in the year 1947, with increasing production in the Middle East, improved facilities for pipeline transport to the Mediterranean from the Persian Gulf, and more efficient arrangements for European marketing, a problem is posed for the producer in South America and for the producer in the United States. The question is being heard: "Will Middle Eastern oil displace South American oil in Europe and thereby turn the latter stream toward the United States?"[13]

The Independent Petroleum Association of America, in a brief presented in December, 1946, to the Committee for Reciprocity Information (Washington, D. C.), pointed to the increasing flow of petroleum imports which, during the first nine months of 1946, reached an average of 378,000 barrels daily as compared with an average of 160,000 barrels daily imported by the United States during the four years 1936-1939. Exports from the United States during the same nine months of 1946 declined by 35,000 barrels daily from the average during the four years 1936-1939.

Effect on Domestic Industry

It is not intended in this report to enter upon a discussion of reciprocal trade policies, and these facts in respect of increasing imports and decreasing exports of crude petroleum and its products are cited only to illustrate the impact on the domestic oil industry of the foreign operations of American companies. The facts are that a torrent of foreign oil could be released on our shores and that imports are already rising rapidly and net exports declining. An inundation by low-cost foreign oil could not help but injure the secondary recovery of domestic oil; it would stifle

[13] See "Middle East Oil," THE OIL WEEKLY, March 24, 1947, page 17.—Editor.

many an independent enterprise which, to exist, must make a profit under the high-cost conditions prevailing in the United States. The danger of this flood is what the "independent" domestic producer fears.[14]

These facts, on the other hand, must be viewed against the background of the increasing use of petroleum and the slowing-up of important domestic discoveries. Since the turn of the century petroleum has been fast growing in importance as a source of industrial energy. In 1944 petroleum and natural gas furnished the nation 7/9ths as much energy as coal, whereas in 1900 they furnished only 1/14th as much as coal. Since the termination of the recent hostilities a tremendous peacetime impetus has been given to the utilization of oil as a fuel. The diesel engine is displacing the steam locomotive on American railroads; the bituminous coal-mining industry is losing a substantial portion of its market to oil; and it is obvious that, unless a national policy to the contrary be adopted, the time might well arrive, in view of diminishing discoveries at home, when the domestic petroleum operator would be at a severe disadvantage in competition with the American petroleum operator who was in a position to meet the demand with imported oil. However, the American investment in foreign oil operations could continue to yield a financial return, and at the same time the domestic oil producer remain in business, if the aims of world statesmen were diverted toward the ways of peace and the raising of the standard of living of the people everywhere.

In 1938, the United States and Canada, with less than 7 percent of the world's population, consumed 62 percent of all petroleum that was consumed in the world. The *per capita* consumption in the United States and Canada for that year was 353 gallons. During the same 12 months the consumption in Australia and New Zealand was 122 gallons; in Russia, 41; in Latin America, 39; in Europe, 31; in Africa, 9; and in Asia, 4 gallons. The great preponderance of consumption in North America is explained principally by the fact that the people of the United States and Canada have a standard of living and an industrial plant which create a far greater demand for petroleum than elsewhere in the world.

It would seem apparent that the danger of a world surplus of petroleum flowing into the United States to destroy the market of the "independent" oil operator could be readily averted by an increased industrialization in foreign countries and by an improvement of living standards whereby the use of motor vehicles would become more general throughout the world.[15] That such a possibility is not mere fancy is demonstrated by the fact that the gasoline demand in foreign countries during the period 1927-1938 showed an average increase of approximately 19,000 barrels per day annually, or 4 percent per year, whereas in the United States the gasoline demand in the same period increased an average of about 24,000 barrels per day, or 2.1 percent per year. It should also be noted that for the same period the demand for all petroleum products abroad, excluding Russia, almost doubled, whereas in the United States the consumption increased about 50 percent.

The prospect of improved living standards abroad is further enhanced by the manifold benefits to foreign countries through the very presence of the American oil investment therein. Likewise the social and educational benefits, resulting from the American investment and the policies of the companies, are manifold. Thus, in 1937, royalties and taxes paid in all foreign countries by American petroleum companies exceeded $687 million. Thousands of the nationals of these countries find welcome employment, skilled and unskilled, by the oil companies, and other thousands find employment indirectly as the result of such large-scale operations. Homes, hospitals, schools, highways, port works, power and light plants, telephone and telegraph lines, airports, water wells, facilities for drainage, irrigation, sanitation, etc., have been constructed in many parts of the world where they had been rarities. It is of small moment that some of these improvements were motivated by a policy designed in the long run to profit the companies. The local benefits are no less real because business enterprise is sufficiently enlightened to cultivate goodwill.

Example of Costs

It is obvious that operations in sparsely populated and remote areas, often in swamps, jungles, and deserts, are extremely costly. When, added to such costs, there is taken into consideration the gamble inevitable in all oil exploration, it is apparent that only companies with vast financial resources could undertake such enterprises. For example, a sum in excess of $60 million was expended before the first oil was shipped from the Barco concession in Colombia, 23 years after the original acquisition of the concession by American interests. In Venezuela the Creole Petroleum Corporation spent $42 million between the date of first investment (1920) and the date of first discovery (1928); and before the first oil was commercially marketed two years later, the company invested $6 million more.

Political risks also attend foreign oil operations, ranging from governmental competition, cumpulsory refinery installation, and trade and exchange control on the one hand, to revision or cancellation of contracts and outright expropriation on the other. In this hemisphere, Bolivia and Mexico took the initiative in nationalizing their petroleum deposits and in expropriating foreign oil properties.[16] In Europe, American oil interests which had made substantial investments in Rumania and Austria and had pioneered discoveries in Hungary now find their holdings after the war under control of Russia which previously expropriated American oil properties acquired under the Empire. Oil lands which have been prospected and developed in Saudi Arabia, Kuwait, Bahrein Island, and throughout the Iraq-Iranian areas are involved in the conflicting politico-economic ambitions of Russia, Britain, France, and The Netherlands, to say nothing of the United States and the inhabitants of Palestine. Across the Indian Ocean in Sumatra the native population is assuming power, and an independence movement has threatened to upset the traditional concepts under which oil concessions were granted and oil interests acquired in the Netherlands East Indies. The new Indonesian government is re-examining these contracts and apparently is demanding at the very least that the Republic be recognized, in lieu of the former Dutch administration, as the successor party to the contracts.

With the Labor government in England pursuing a policy of nationalization at home in respect of the coal industry —although abroad striving to maintain the structure of empire—and with the Soviets pursuing a policy of communism, the rising native governments have example enough to cause them to assume that prewar standards of dealing with natural resources require modification.

Thus is posed a thorny question of foreign policy for the United States. A foreign policy, simple enough when it involved chiefly the exercise of the government's persuasive diplomatic authority for the preservation of economic conditions under which Americans could operate abroad with a minimum of difficulty, becomes complex indeed when it concerns the activities of modern corpo-

[14] It is important to note that the American producer is not only faced with the task of finding more oil, but with the certainty that its findings and production will cost more and more as time goes on, due to the certainty that *most* of the new oil will be found at greater depths.—Editor.

[15] Not only increases in gasoline and lube oil consumption face the industry, but in Europe, due to the collapse of the coal industry, the duration of which collapse cannot at this time be determined, burning oils are facing a constantly increasing petroleum demand. Standard Oil Company (New Jersey) for instance, feels that its market in Europe and the Eastern Hemisphere, will require practically all of its newly acquired oil in the Middle East. (See THE OIL WEEKLY, March 3, 1947, page 28.)—Editor.

[16] The committee did not say what many oil men think—that the "climate" at the White House at the time was in part favorable to the Mexican expropriation.—Editor.

rate giants, the ambitions of totalitarian states, declining empires, and revolutionary uprisings.

Prior to the war of 1914-1918 American diplomatic policy was not different for oil from what it was for any other commodity in world trade. Our policy then was designed primarily to uphold the right of American nationals to export to foreign countries on equal terms with foreign exporters. But after 1918 the American oil companies enthusiastically aplied their great technological skill and financial resources in a successful search abroad for new fields to develop, spurred by the vigorous support of the Department of State sustaining the principle of the "open door," and by a widespread fear of an impending oil shortage. Now that the few American companies strong enough to operate abroad are dealing with some foreign governments almost as equals, and three-quarters of the world is worshiping at strange economic shrines, we find ourselves in a new chapter. Diplomatic policy now must be directed toward the establishment of a world economy free from the restraints of monopoly, whether practiced by government, by private cartel, or by a union of government and cartel.

An indispensable corollary of American oil activity in foreign countries, whether primarily producing or consuming countries, is the creation of an economic climate wherein world trade can breathe. To the degree that foreign governments, acting with an eye only to immediate economic advantage, impose severe restrictions, American oil operations abroad will suffer. To be sure, in the absence of a treaty to the contrary, a foreign government is at liberty under international law to legislate to the detriment of foreign business, provided the legislation is of general application and does not deprive foreigners of their lawfully acquired property without adequate compensation. However, it is to be earnestly hoped that all governments will take early steps to create a world economy fostering trade among the nations, and that by international agreement and education the markets of the world will be opened to the international merchant in a spirit of welcome for the goods he offers in exchange for the products of the importing country. Assuredly the inspiring growth of world trade from the days of the ancient Phoenicians and through the period of the Crusades to its modern burgeoning in the Age of Discovery and its rapid development after the Industrial Revolution ought not shrivel in the twentieth century. It will not shrivel if men recognize that the prosperity of trade is measured by the number of people who may with profit participate in it, and if the nations of the world will keep the door of opportunity open to all.

Patent Roundup

Patents issued by the United States Patent Office, Washington, D. C., include those listed below.

Printed copies of the patents listed are furnished by the Patent Office for 25 cents per copy and can be had by addressing the Commissioner of Patents, Washington, 25, D. C.

Plug Valve Closure

Sven J. Nordstrom, Lefayette, Calif., has obtained this patent (No. 2,398,444) and assigned it to Merco Nordstrom Valve Company, Pittsburgh.

The valve is made up of a casing with a seat formed across the bore. A valve plug in the seat has a port which registers with the casing bore in open position of the valve. Another passageway in the casing extending from the exterior to the valve seat is threaded so as to provide an internal face substantially normal to the axis of the passageway. A removable threaded cover provides an external face also normal to the same axis, there being a recess breaking the threaded engagement of the bore and cover. There is a means for introducing plastic, non-setting sealing material under pressure to the recess to seal the joints between the cover and casing, the threaded engagement between bore and cover being such as to prevent deformation of the bore nad consequent distortion of the seat.

Treating Oil

William O. Webber, Baytown, Texas, has assigned this patent (No. 2,409,005) for treating salt-bearing crude oil to Standard Oil Development Company.

The oil is heated and water added, the liquid being agitated to form an intimate mixture and dissolve the salt from the oil into the water. The mixture is placed in contact with a bed of water-wettable, finely divided solids with a basic solution having a concentration within the range of .0125 to .25 per pound mole per 1000 gallons of water in order to insure the thorough water-wetting of the bed. The mixture is passed through the treated bed and settled into a water component and oil component suitable for feeding into a distillation unit.

Magnetometer

This remote reading magnetometer was patented (No. 2,420,580), by Leland L. Antes, Houston, and assigned to Standard Oil Development Company.

A coil, having its plane in a normally vertical position, is rigidly connected to a rod passing through the transverse axis of the coil. There is a means for supplying alternating current to the coil, causing it to oscillate by the vertical component of the earth's magnetic field. A means remote from the assembly indicates the torque in the rod as the result of the oscillations of the coil and a means operably connected with the rod communicate the torque to this indicating means.

Gun Perforator

This device, (No. 2,419,841), was patented by Walter Lampel and Richard Horndlein, Furth, Germany, and has been vested in the U. S. attorney general.

A sinking member has a screw threaded opening with a gun body screw threaded into the opening, and also has a longitudinal projectile bore with a transverse bore at one end. There is a powder casing in the transverse bore, opposite separable pieces which extend into the bore and hold the casing in position. An inwardly tapered sleeve engages the gun body, the separable pieces and the inner wall of the opening, and forms a tight fit between the parts.

Liner Contamination Preventer

The patent for this apparatus (No. 2,419,313), held by Edwin E. Byrd, Midland, Texas, has been assigned to Standard Oil Development Company.

The screen assembly includes a cylindrical screen member provided with at least one and a number of small round openings, and carrying a sleeve which is longitudinally movable and so arranged as to expose the large and close the small openings in a first position but close the large and expose the small openings in second position. The screen assembly also carries a packer above the openings of the screen member. In the lower end of the latter there is a tubular member which carries a means to engage and move the sleeve from its first position to second position upon longitudinal movement of the tubular member relative to the screen member. The tubular member also carries other means to engage with the packer which is then set upon longitudinal movement of the tubular member relative to the screen member.

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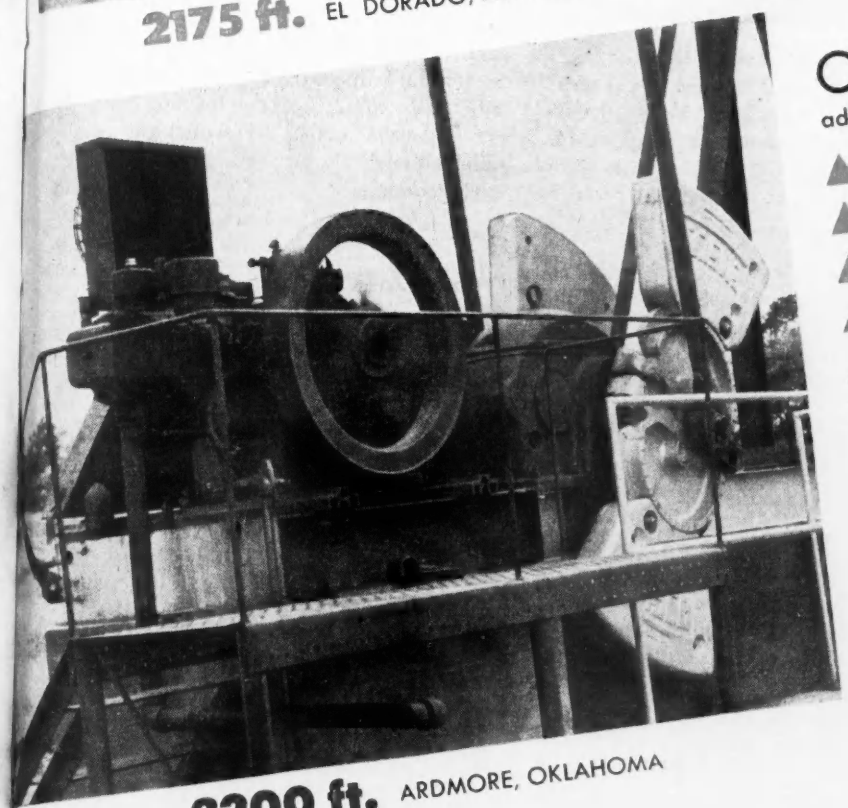

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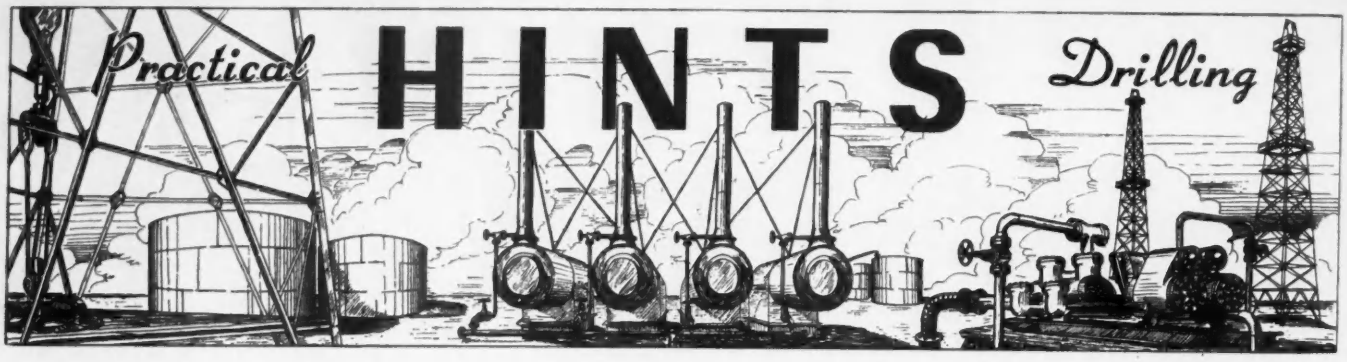

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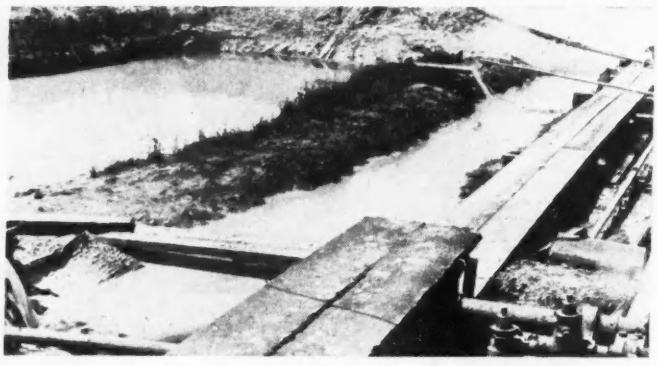
How To— Reduce Sand Content in Drilling Fluids with Special Ditch

When drilling through extremely sandy formations

MUD CONTROL

which burden the fluids with tiny sand grains, it is important that these abrasives be removed,



not only to reduce wear on equipment, but to permit better control of the drilling fluid. With previous knowledge of the sanding conditions, the tool pusher of one company on a second location made provisions to handle the problem efficiently and economically.

In laying out the mud pits, an intermediate pit was located between the reserve pit and the sump pit. It is narrow with a sloping bottom, beginning with a shallow depth at the shale shaker discharge, and deepening toward the far end of the pit. In this manner, the mud travels over a greater distance before reaching the sump from which it is drawn into the pumps. This greater distance of travel after it comes through the shale shalers, plus the increasing depth, permits much of the remaining sand to drop out of the mud. The deeper end reduces the turbulence of flow, which also adds to the desanding process. The system has performed the job satisfactorily without the use of mechanical desanders.

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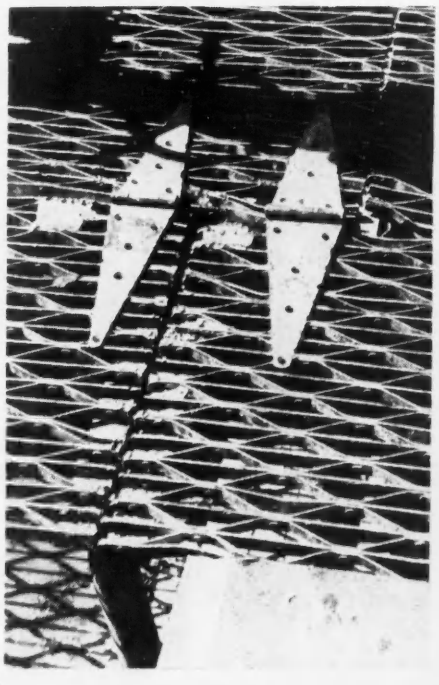
How To— Unitize Walkways Around Pumps

Elevated walkways around steam engines, mud pumps and boiler manifolds have eliminated a hazardous stumbling block to drilling crews who must service or adjust these pieces of equipment.

WALK-WAYS

With such elevated walkways, all connections to and from the equipment can be passed below the walkway level to provide an unobstructed path around the pumps or engines. The use of metal grilles in walkways simplifies setting up these sections as well as giving long service.

In these elevated walkways around the mud pumps, sections must be cut from the metal grille to permit the passage of steam and mud lines. Such grilles must be placed around the same pump each time the rig is set up. In order to simplify setting up these walkways, one company has unitized these metal grilles by means of tack-welding 12-inch strap hinges to the grille work. This permits the sectional grilles to be folded for shipment and also holds the adjacent sections in position when in place.



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BUDA Oilfield ENGINES

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BUDA NATURAL GAS OIL FIELD ENGINE SERVICE RATINGS

Model	Maximum HP @ RPM	65% Production Pumping HP @ RPM	70% Pipe Line Pumping HP @ RPM	75% Mud Pumps HP @ RPM	80% Drilling Hoisting HP @ RPM	85% Well Servicing HP @ RPM
4-B-153	49 @ 2800	22 @ 1600	24 @ 1600	28 @ 1800	33 @ 2000	39 @ 2400
6-B-230	73.5 @ 3200	31 @ 1600	34 @ 1600	40 @ 1800	46 @ 2000	56 @ 2400
HP-326	79.5 @ 2600	37 @ 1400	40 @ 1400	48 @ 1600	55 @ 1800	62 @ 2000
K-428	108 @ 2400	48 @ 1400	52 @ 1400	62 @ 1600	72 @ 1800	83 @ 2000
L-525	113 @ 2400	57 @ 1400	61 @ 1400	72 @ 1600	83 @ 1800	93 @ 2000
LO-525	157 @ 2400	67 @ 1400	72 @ 1400	87 @ 1600	101 @ 1800	114 @ 2000
JL-1335	194.5 @ 1350	109 @ 1000	117 @ 1000	134 @ 1100	150 @ 1200	164 @ 1300
MO-893	188 @ 1800	100 @ 1200	107 @ 1200	128 @ 1400	141 @ 1500	150 @ 1800
PC-1879	242 @ 1200	142 @ 900	153 @ 900	175 @ 1000	192 @ 1100	206 @ 1200
6-PCG-1879†	340 @ 1200	172 @ 900	185 @ 900	220 @ 1000	256 @ 1100	289 @ 1200
PCS-1879*						

*Supercharged †Convertible

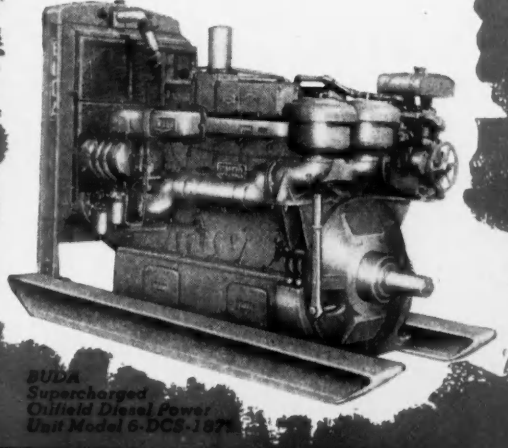
NOTE: Engine speeds shown for various types service are MAXIMUM recommended. Many operators prefer lower speeds for longer engine life. In these cases select desired engine operating speed and refer to Maximum HP shown on Buda oil field power curve and take percentage (%) of Maximum HP shown above for each type service. Ex: assume it is desired to operate Model HP-326 in "pipeline service" at 1200 RPM Power curve shows 50 BHP at this speed. Taking 70% of 50 BHP = 35 usable HP @ 1200 RPM.

BUDA DIESEL OIL FIELD ENGINE SERVICE RATINGS

Model	Maximum HP @ RPM	65% Production Pumping HP @ RPM	70% Pipe Line Pumping HP @ RPM	75% Mud Pumps HP @ RPM	80% Drilling Hoisting HP @ RPM	85% Well Servicing HP @ RPM
4-BD-153	40 @ 2400	20 @ 1600	22 @ 1600	26 @ 1800	29 @ 2000	33 @ 2200
6-BD-230	60 @ 2400	31 @ 1600	33 @ 1600	38 @ 1800	44 @ 2000	49 @ 2200
6-DT-317	90 @ 2300	44 @ 1600	48 @ 1600	57 @ 1800	65 @ 2000	77 @ 2200
6-DT-468	113 @ 2000	59 @ 1400	63 @ 1400	72 @ 1500	80 @ 1600	92 @ 1800
4-DC-645	119 @ 1400	62 @ 1100	67 @ 1100	78 @ 1200	83 @ 1200	101 @ 1400
6-DC-844	180 @ 1800	89 @ 1200	96 @ 1200	117 @ 1400	131 @ 1500	153 @ 1800
6-DCS-844*	225 @ 1800	109 @ 1200	117 @ 1200	145 @ 1400	164 @ 1500	192 @ 1800
8-DC-1125	240 @ 1800	119 @ 1200	128 @ 1200	157 @ 1400	176 @ 1500	204 @ 1800
8-DCS-1125*	300 @ 1800	145 @ 1200	156 @ 1200	194 @ 1400	218 @ 1500	255 @ 1800
6-DC-1879	258 @ 1200	140 @ 900	150 @ 900	174 @ 1000	198 @ 1100	218 @ 1200
6-PCD-1879†	330 @ 1200	174 @ 900	187 @ 900	218 @ 1000	251 @ 1100	281 @ 1200
6-DCS-1879*						

*Supercharged †Convertible

NOTE: Engine speeds shown for various types service are MAXIMUM recommended. Many operators prefer lower speeds for longer life. In these cases select desired engine operating speed and refer to Maximum HP shown on Buda oil field power curve and take percentage (%) of Maximum HP shown above for each type service. Ex: assume it is desired to pull "Mud pump" with Model 6-DC-844 operating at 1200 RPM Power curve shows 137 BHP at this speed. Taking 75% of 137 BHP = 102 usable HP @ 1200 RPM.



BUDA Supercharged Oilfield Diesel Power Unit Model 6-DCS-1879

BUDA

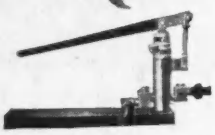
WHEREVER THERE'S OIL *there's Buda...* ENGINES AND SERVICE

15436 Commercial Avenue
HARVEY *(Chicago Suburb)* ILLINOIS

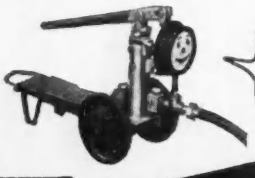
BUDA OIL FIELD DISTRIBUTORS IN:

TEXAS—Houston, Wichita Falls, Dallas, Odessa, Kilgore, Corpus Christi, Pampa • OKLAHOMA—Tulsa, Oklahoma City, Seminole • CALIFORNIA—Los Angeles, Long Beach, Bakersfield • MISSISSIPPI—Tinsley • LOUISIANA—Shreveport • NEW MEXICO—Artesia • KANSAS—Great Bend, Ulysses • WYOMING—Casper • COLORADO—Denver • ILLINOIS—Salem • NEW YORK—Wellsville, New York City (Export)

They call me "HANDY ANDY"



I can test pipe and fittings, remove cores, and develop pressures up to 6,000 psi for any and all types of testing. I weigh approximately 68 lbs. on a solid base, but if you don't want to lug me around, then order me with wheels.



BAKER hydraulic HAND PUMP

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THE EDWIN H. FITLER CO.
PHILADELPHIA 24, PA.
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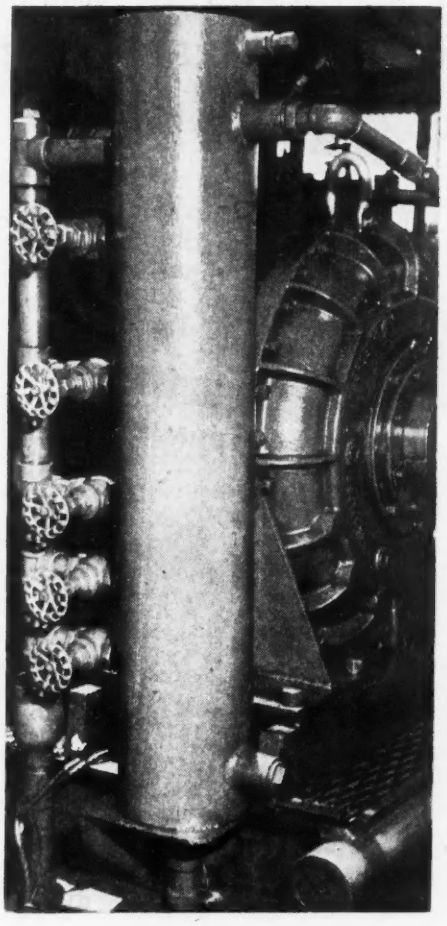
How To— Regulate Water Level in Hydromatic Brake

DRAW-WORKS

The amount of resistance to shaft rotation offered by hydromatic brakes may be regulated by the water level in the brake. As the hole goes deeper, it is desirable to increase the resisting torque offered by the brake. However, maintaining the desired water level in the brake during the drilling of a well is often a problem when the level is regulated by controlling the amount of water allowed to flow through the brake. An easy method of maintaining a constant known water level in the brake is by using a stand-pipe.



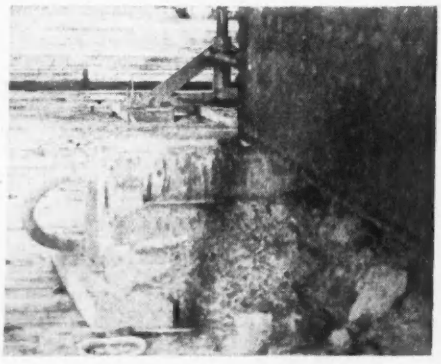
The stand-pipe is made from ten-inch pipe and is mounted on the drawworks skid adjacent to the hydromatic brake, with the base of the stand-pipe slightly below the base of the brake. By fitting the stand-pipe with outlet valves at various heights, several water levels may be obtained by merely opening the outlet valve at the desired level and closing all valves below this level.

The stand-pipe is connected to the brake from the bottom. In this manner, the water level in the brake and that in the stand-pipe will automatically equalize. The stand-pipe is tall enough to permit the brake to be completely filled with water if necessary. Best results have been obtained by allowing a small volume of water to run into the stand-pipe continually, and letting it overflow through the valve corresponding to the level desired.

How To— Support Boiler Battery With Used Drill Pipe

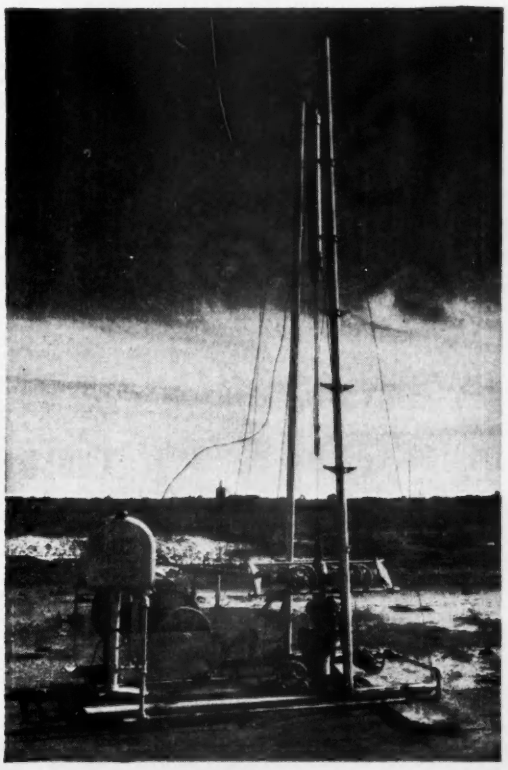
BOILER SETTING

A firm, portable support for the boilers may be fabricated from junk drill pipe by welding them together in pyramid form with two on the bottom and one on the top. The end of the pipe support which runs the entire width of the four boilers is shown. A half-inch plate is welded over the ends to hold them together, and they are braced with a section of half-inch plate every ten feet.



A heavy eye is welded into each end of the assembly to facilitate loading and unloading as well as to aid in spotting the boilers. Before the supports are placed in swampy areas, the necessary matting must be placed beneath to increase the pressure area, but the three pieces welded together are rigid enough to keep the boilers at the same elevation so as to maintain the same water level in each boiler when they are interconnected. The cost of making such a boiler support is well repaid in time and trouble saved on the location.

Check these superior Performance Qualities of the NIXON "Surface Control" GAS LIFT



Several thousand units now in operation give proof that the Nixon Surface Control Gas Lift is the economical, dependable method of producing oil.

Positive control of gas injection at all times eliminates waste of gas due to slow pressure build-up.

Remember—cost of surface equipment of the Nixon Gas Lift remains the same—regardless of depth—the only increase in cost for increased depth is that of additional valves and additional wire line.

IMPUT RATIO

DAILY PRODUCTION

COST OF OPERATION

LENGTH OF LIFE

CONTACT YOUR NEAREST WILSON SUPPLY STORE

WILSON SUPPLY COMPANY

1412 MAURY ST., HOUSTON, TEXAS

SALES OFFICES: Tulsa, Oklahoma; Dallas and San Antonio, Texas. LOS ANGELES: Western Pressure Control, 5700 Santa Fe Avenue. TRINIDAD, B.W.I.: Neal Massey Eng. Corp.

BRANCH STORES: TEXAS—Kilgore, Beaumont, Barbers Hill, Bay City, Monahans, Alice, Victoria, Corpus Christi, Columbus. LOUISIANA—Lake Charles, New Iberia, Harvey, Shreveport. ARKANSAS—Magnolia. MISSISSIPPI—Natchez.

Simplex-Jenny
CENTER-HOLE HYDRAULIC PULLER

Makes Tough Pulling Jobs Easy

Does a wide variety of tough pulling, pushing and lifting jobs in minutes instead of hours. Center-hole construction makes the Simplex-Jenny its own back-up. Easily rigged up as a portable press or used as a conventional jack. Operates vertically or horizontally without side thrust or friction. Five models—30 to 100 tons—all self-contained and light in weight for their capacity. Write for Bulletin 44J.

TEMPLETON, KENLY & CO.
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Simplex
LEVER · SCREW · HYDRAULIC
Jacks

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ON HOW TO

Make your drilling dollars go deeper

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Natural Gas Carburetors • Orifice Gas Well Testers • Heavy Duty Spudder • Electric Light Plants • Drilling Engines (Gas, Gasoline, Butane, or Diesel) • Under-road Boring Machine.

DRILLING HINTS

How To—

Anchor and Align Mud and Steam Lines

MUD LINES

Pulsations in mud lines are capable of breaking the seals at unions if permitted to vibrate without some method of support. The method shown was employed by one company to firmly anchor the four-inch mud lines, and at the same time provide a means of aligning the pipe for make-up.

A large, heavy turn-buckle and two shop-made pipe clamps did the job. The two lines were placed parallel to the long edge of the mud pump skids, which were located end-to-end. Each pipe clamp was made from ½-inch steel plate and provided for four ¾-inch bolts. The top half of the clamp also formed the tongue or ear to which the turn-buckle was attached. With the clamps firmly secured to the two lines and the turn-buckle drawn up tightly, there was little chance for the lines to vibrate, for the entire mud pump and skid formed a base or anchor to steady these lines.

In tearing down the rig for a move, it is only necessary to unscrew the turn-buckle and dismantle the assembly.

How To—

Construct Sturdy "V" Ramp

RAMPS

Generally, the V ramp on drilling rigs is made of heavy timbers to cushion the shock when equipment is drug up or lowered from the floor, as well as to reduce possibility of damage to the equipment. To provide a strong ramp for one rig which was elevated about 14 feet off ground level, one company constructed a V ramp from worn 4½-inch drill pipe.

Each section of drill pipe was cut at an angle on each end to fit the desired slope of the ramp. Fourteen of such sections were cut to suitable length, with each end cut at an angle. A piece of strap steel was placed across the open ends of the 14 sections which had been placed side by side as shown. The ends were then welded to the straps, which covered the open ends and held the individual pipe sections together.

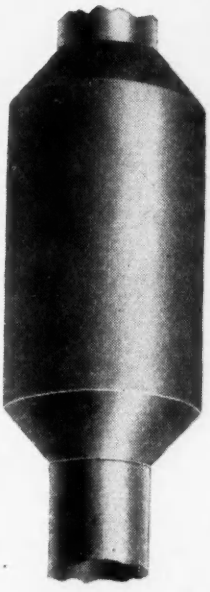
The joints were tack-welded at intervals along the abutting sides to form a solid, durable ramp. Drill pipe and drill collars as well as other tubular goods can be lifted onto or off the derrick floor without fear that the ramp would collapse. The grooves provided by the adjoining sections of pipe prevent the drill pipe from sliding off the ramp when these joints of pipe are being pulled onto the floor.

NEW EQUIPMENT LITERATURE

FOR ADDITIONAL INFORMATION, USE MAILING CARD INSERTED OPPOSITE THIS PAGE

1—Drill Pipe Protector

The new Russco non-slip drill pipe protectors and stabilizers are streamlined to reduce friction and wear in the mud flow system. When expanded to full size, the protectors taper on both ends to a feather edge next to the drill pipe so the flow of mud is directed over the protector with minimum fluid resistance. It is designed to extend the maximum tension in its thickest section after installation on the drill pipe.



The anti-friction applicator which makes possible the installation of the expansible streamlined protectors contains fingers on the expanding head which turn the lower end of the protector outward to create a temporary shoulder on the inside of the protector during the expanding operation. The applicator is said to reduce 50 percent of friction during the expansion of the protector.

Size of the protectors are one-half the inside diameter of the drill pipe upon which they are to be installed. These new protectors may be installed on a stand, on singles or doubles, on the rig floor, or upon singles while they are still on the pipe rack. The protectors are fixed and rigidly supported and firmly held in position during their expansion. Russco non-slip streamlined protectors and stabilizers are packed in convenient sealed packages and are not touched or exposed to light or weather.

Rubber Sleeve Specialty Company, P. O. Box 4402, Oklahoma City.

(Check item 1 on postcard for more information.)

2—Induction Heater

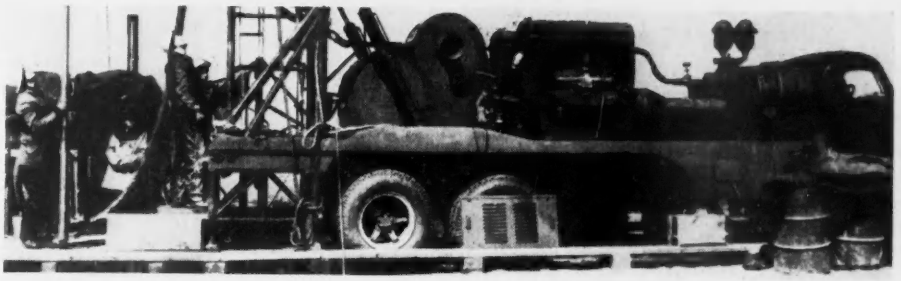
A portable induction heater for preheating and normalizing in welding work is being manufactured in units of ten KVA. Each of the units may be stacked on the job to form groups of two and three units with capacities of 20 and 30 KVA to obtain sufficient heater capacity for preheating and normalizing welded joints on pipes of larger diameters. The 30-KVA group, for instance, is capable of preheating a ten-inch pipe joint to 1300° F. in two hours.

Extremely compact, the UP heater is especially useful in a limited space and crowded conditions and can be kept close to the work.

Each unit is complete in itself, containing power unit, contactor, meters and control supply. Heating current and voltage output variations are brought about by a selector switch built into the unit. Controlling pyrometers and program controllers can be plugged into the induction heater in two polarized receptacles for recording job temperatures and heat cycles.

Electric Arc, Inc., 88 Jelliff Ave., Newark 8, N. J.

(Check item 2 on postcard for more information.)



3—Slim Hole Rig

The 2500 Holemaster is designed for core drilling, deep exploration holes, electrical logging, water wells, mineral exploration, and slim-hole production to a depth of 4000 feet. One of the outstanding features of the new drill is the easy accessibility of all working parts and a new balanced crown block which insures even loading of the mast legs. The mast itself is sectionalized and so designed that additional length may be added without alterations to the mast. The light, all-steel, oil-bath rotary table is easily removed and adapted to special drive and table stand for rathole drilling.

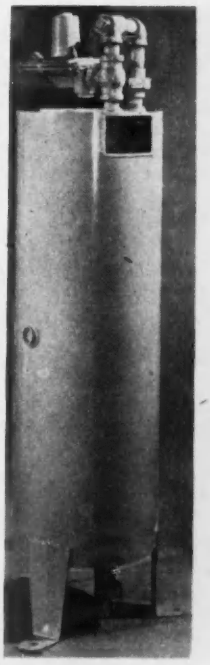
The new type double drawworks is actuated by two air clutches. A patented floating gear box gives smooth application of power to the drawworks and rotary table. The heavy duty transmission provides four rotating speeds and one reverse. Dual engines are coupled through a special hydraulic cushion drive which makes possible any drive application from individual, to compounding of engines to drill and pump. Hydraulic throttles are provided which give perfect synchronization when the motors are compounded. The duplex 5 x 10-inch reciprocating mud pump is unitized with the drill and fingertip air controls are grouped for ease of operation.

Geo. E. Failing Supply Company, Enid, Okla.

(Check item 3 on postcard for more information.)

4—Volume Tank

A new gas volume tank consists of two separate compartments and is of compact, upright construction. Mounted on three legs drilled for tie down, the PC-2531-A volume tank is designed for a maximum working pressure of 50 pounds per square inch on the high-pressure compartment and ten ounces on the low-pressure compartment.



The tank acts not only as a reservoir but as a settling tank or trap for foreign particles and oil present in most lease gas systems. Drain plugs are provided in both compartments for drainage and cleaning. Constructed in accordance with suggested API-ASME code for unfired pressure vessels, the volume tank is hydrostatically tested to 100 psi on high-pressure cylinder and 25 psi on the low-pressure cylinder. The compartment heads are inset within the cylinder to reduce the tension on the welds.

The high-pressure cylinder has a capacity of 1106 cubic inches while the

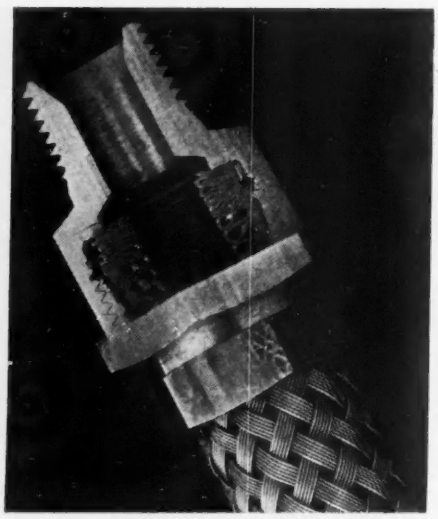
low-pressure cylinder has a capacity of 2644 cubic inches, considered sufficient for most slow speed oil well pumping engines not exceeding 750 cubic inches displacement. The unit is shipped completely assembled with regulator, ready to hook onto the gas distribution system and engine.

The Continental Supply Company, Dallas.'

(Check item 4 on postcard for more information.)

5—Metal Hose

This new seamless flexible metal hose is made of a special alloy bronze tube formed into a uniform helically corrugated flexible hose. All Uniflex metal hoses are encased in a high-tensile



bronze wire braid to provide added safety and prevent elongation. This sheath is permanently attached to carefully designed couplings that are built to relieve the hose itself of damaging strains. The fitting provides a metal-to-metal seat by means of a seal produced between the fitting body and the spring-washer effect of the hose itself. No brazing or packing is required.

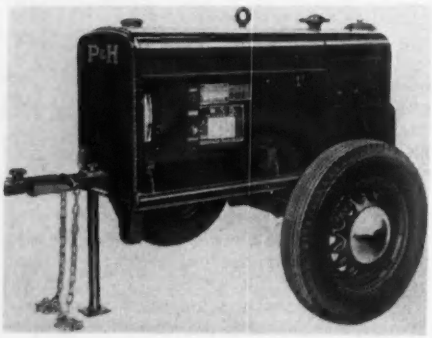
The Brockway Company, Naugatuck, Conn.

(Check item 5 on postcard for more information.)

6—Portable Welder

A new self-powered arc welder is designed for shop, yard and field service.

The P&H Model WN-200 Welder, available as a stationary or trailer unit, is an NEMA rated machine of 200



amperes, but has a welding service range of from 30 to 260 amperes. Both types have engine and welder securely mounted on an all-welded frame of sturdy steel tubing and heavy angle iron.

The trailer model has been engineered especially for use in the field. Carried on a running gear of standard track width, the trailer welder has standard size pneumatic tires as regular equipment.

Both models are equipped with P&H's square frame arc welding generators. There is just one control for any desired welding heat from minimum to maximum capacity. Arc response is automatic on all classes of work and with all types of electrodes. The new model has "Visimatic" calibration plates which enable the operator to select instantly the exact welding current for each of the three classes of electrodes.

Rated 30 volts at 2900 rpm, the generator is self-excited by a set of auxiliary brushes mounted on a brush holder rocker in advance of the main brushes. The armature is dynamically balanced and is supported on each end on large grease lubricated ball bearings. Windings are especially treated to withstand heavy overload and internal operating stresses.

A heavy-duty, four-cylinder air-cooled engine of 26.5 horsepower supplies power for both models.

Harnischfeger Corporation, Welding Division, 4400 W. National Avenue, Milwaukee 14.

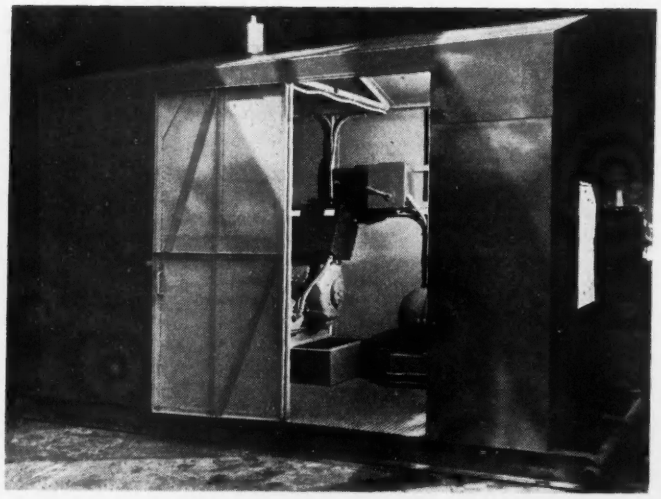
(Check item 6 on postcard for more information.)

7—Utility Unit

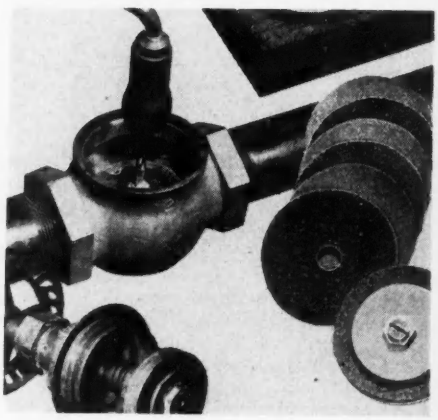
Model 20-DE, a new oil field utility unit, is a combination air compressor, lighting generator and washdown pump. It has a 20-kilowatt direct-current generator set which supplies steady electric current for the operation of the air compressor, the washdown pump, with ample reserve for rig lighting and other electric motor-driven equipment.

The use of the G.M. diesel engine as a prime mover assures dependable and economical performance with a minimum of weight. The entire unit is mounted on a heavy-duty oil field type skid base and is housed in a sheet metal tool house type enclosure. The self-contained unit is furnished with a special electric control panel.

Stewart & Stevenson Services, 4516 Harrisburg Blvd., Houston.



(Check item 7 on postcard for more information.)



8—Valve Seating Tool

This valve reseating tool employs aluminum-oxide abrasive discs mounted on both sides of a wafer-thin steel body and is so constructed that the tool is operated by means of a brace equipped with a screw-driver bit. Because of its unique construction no special guides or jigs are required and it is not necessary to dismantle the bonnet and stem assembly of valve; therefore, the stem packing is not disturbed.

One side of the Pivot tool has a coarse abrasive disc which enables one to grind away seat defects rapidly while the abrasive on the other side is finer so that by reversing the tool a mirror-like polish can be put on the valve seat.

Pivot valve reseating tools are available in eight sizes for globe, angle and check valves of the flat or round seat type from ½ to 3-inch, inclusive, and are packed in hardwood cases.

Grace Products Company, P. O. Box 2466, Birmingham, Ala.

(Check item 8 on postcard for more information.)

9—Earth Mover

Built to answer the need for a small, high-speed scraper unit on small yardage projects and a one-man utility dirt

Prevent

PARAFFIN ACCUMULATION IN YOUR PUMPING WELLS

Here is the solution to that serious and costly problem of production . . . paraffin accumulation in your pumping wells. With Huber Scrapers attached to the sucker rods, the rod string itself becomes the paraffin scraper. The rod string, with Scrapers attached, is rotated a fraction of a turn on each reciprocation by means of the rotating head rod hanger. The Scrapers, clearing the tubing wall by only a fraction of an inch, scrape the accumulating paraffin from the tubing wall on each stroke of the pump.

Operation of the Huber Scrapers is automatic and entirely mechanical. They require no service or attention after installation . . . they eliminate the frequent and costly job of steaming out or "passing rods" to keep the well on production.

If you are having paraffin trouble in your pumping wells you need Huber Scrapers. Write for full information and detailed records on the savings other operators are making with Huber Scrapers.

HUBER

PARAFFIN SCRAPER

These scrapers are steel blades, securely attached to the sucker rod. A pre-formed clip, welded to the scraper, is "shrink-welded," under pressure, around the rod. Six scrapers are spaced two feet apart on each rod. Scrapers for 2" tubing are ⅛" thick, 1¼" wide, 2' long. Proportionally wider scrapers are used for larger tubing.

ROTATING HEAD

The rotating rod hanger is attached to the unit's or jack's head by a conventional wire line bridle. The polish rod is clamped in the hanger by case-hardened slips and jamnut riding on top of a heavy duty horizontal thrust bearing.

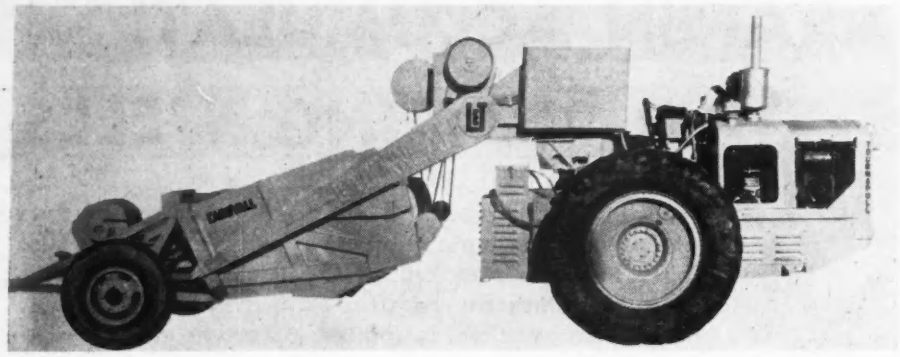
A turntable is firmly attached to the polish rod below the rotating hanger. Two ratchet levers, engaging teeth on the turntable, and operated by a flexible steel cable extending from the walking beam, rotate the rod string a fraction of a turn on each stroke.

HUBER

ORDER FROM YOUR SUPPLY STORE

J. M. HUBER CORPORATION

POST OFFICE BOX 831 **BORGER, TEXAS**



mover, the Model D Tournapull features many new developments in design.

Powered by an 85-horsepower gasoline engine, this prime mover is equipped with the new E-4 carryall scraper, having a load limit of four tons and a capacity of 3.3 yards. The unit is self-loading, has four speeds forward, four reverse, and travels up to 23 miles per hour.

A feature is the electric control by individual electric motors—a new operating principle which replaces conventional tractor steering and gear shift levers. It also eliminates the need of a power control unit for scraper operation. Operator steers, shifts and handles all scraper controls by buttons on the electric control panel.

The D Tournapull has a new differential which keeps both wheels pulling at all times. The design is such that on slippery going the most power is supplied to the wheel on firmest footing. Neither wheel will spin independently of the other. The new unit is equipped with air brakes. Overall dimensions: Length, 22 feet, 5 inches; height, 7 feet, 4 inches; wheel base, 13 feet, 2 inches; width of cutting edge, 6 feet; and weight empty, 7½ tons.

R. G. Letourneau, Inc., Peoria, Ill.

(Check item 9 on postcard for more information.)

Literature

10—Forged Nut Bulletin

A four-page folder on large forged nuts, starting at three inches and used for large construction and for heavy machinery and equipment, has been published. This bulletin describes the types of nuts fabricated, which include the standard varieties as well as the unusual types of nuts to blueprint, heat treated and machined as desired. The method of threading the nuts, employing modern hob milling equipment, is outlined. Illustrations of numerous nuts are shown, including a cross-section of a nut showing the threads. Large nut classifications are defined to assist the buyer.

Jos. Dyson & Sons, Inc., 5125 St. Clair Avenue, Cleveland 14.

(Check item 10 on postcard for more information.)

11—Dresinol Booklet

A booklet describing the use of Dresinol, a new chemical selective plugging agent in secondary recovery of oil by water flooding, is now available. In extensive tests in the Bradford, Penn., oil fields, Dresinol proved economically effective in reducing excessive water consumption by sealing off the more permeable, non-productive sands, and directing the water flow into oil containing sands.

In addition to describing the chemical nature of Dresinol, one of a series of rosin and resin emulsions, the booklet includes information on how Dresinol is applied, how it helps in secondary recovery by water flooding, and results of some of the extensive field tests at the Bradford lease. Information on the field tests is amplified by charts which show the results of using Dresinol in several wells.

Hercules Powder Company, Wilmington, Dela.

(Check item 11 on postcard for more information.)

12—Hydraulic Power

The increasing use of oil-hydraulic power in all branches of industry led to the publication of the booklet, "Hydraulic Equipment," a comprehensive review of hydraulic principles and problems in this growing field.

The booklet includes chapters on hydraulic principles, hydraulic systems and equipment, hydraulic oil requirements and performance characteristics, and maintenance and cleaning of hydraulic systems. Throughout its 44 pages, the booklet emphasizes that smooth, efficient, economical operation of any oil-hydraulic mechanism depends as much on the liquid which transmits the power as on the design, construction and operation of the mechanical parts.

Shell Oil Company, Inc., 50 West 50th, New York 20.

(Check item 12 on postcard for more information.)

13—Valves and Fittings

Fifty-four pages have been bound in standard note-book size to form Aloyco Catalog No. 47. The problem of corrosion is briefly discussed, with special reference to stainless steels in manufacture of valves and fittings in the handling of corrosive fluids. Gate valves and check valves, both globe and swing, are illustrated and accompanied by specifications. Many different fittings for varied service are also presented. A section is devoted to valve design and construction details. In this section, features of Aloyco valves are pictured in cross-section by enlarged drawings. An application data chart is included which makes recommendations as to the type of alloys to be used in handling certain substances.

Alloy Steel Products Company, Inc., Linden, N. J.

(Check item 13 on postcard for more information.)

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Refining Slumps From Record Level; Crude Production Increases Slightly

The industry failed to carry on refining operations in the week of July 19 at the record-breaking rate of the previous week when runs to stills reached an all-time peak. The cut-back resulted in gasoline yields being lowered in favor of production of fuel oils, which increased their stocks satisfactorily. These trends were shown in API's latest statistical bulletin.

Crude production in the U. S., after declining two weeks in succession, showed an increase of 5000 barrels a day to the daily average of 5,050,000 barrels. That daily rate was 65,000 barrels under the all-time high reached in the week of June 21, but represented an increase of 113,000 barrels over a year ago.

Crude runs to stills in the week averaged 5,126,000 barrels daily to show a drop of 103,000 barrels a day from the previous week's all-time high of 5,229,000 barrels daily. However, the week's runs were still 309,000 barrels a day or 6.4 percent over runs of the like week of last year. Refineries operated at 93.3 percent of capacity in making the previous week's record runs, while the current period required only 91.5 percent.

Stocks of refinable crude totaled 232,361,000 barrels on July 12, after drafts totaling 1,449,000 barrels were made during the preceding week, according to the Bureau of Mines. Since a year ago, these stocks have increased 9,502,000 barrels or 4.3 percent.

The decrease in total refinery operations was made mainly at the expense of gasoline production, as output for the week was lowered 450,000 barrels from the previous period. Gasoline production, including natural blended, for the week amounted to 15,747,000 barrels, which was 1,520,000 barrels or 10.7 percent more than was produced in the comparable period of last year. Stocks of finished and unfinished gasoline were lowered 1,646,000 barrels and totaled 87,145,000 barrels at the week's end.

Distillate fuel oil output remained practically the same as the previous week's, showing an increase of 3000 barrels to 5,912,000 barrels. Compared with last year's week, that was an increase of 583,000 barrels or 10.9 percent. Stocks of these light oils increased 1,244,000 barrels to total 46,505,000 barrels, 3,024,000 barrels or 7 percent more than was held a year ago.

Production of residual fuels for the week showed an increase of 290,000 barrels over the previous week to total 8,969,000 barrels, or 880,000 barrels more than was produced a year ago.

Some Michigan and Louisiana Crudes 8 to 11 Cents Higher

Some Michigan and Louisiana crudes were priced 8 to 11 cents per barrel higher last week. The Michigan raises, termed as adjustments, have already resulted in some refiners of the crudes passing on the increased costs to the product consumer.

Arkansas Fuel Oil Company announced that, effective July 16, it had made a flat 10-cent increase from $2 to $2.10 per barrel in price it will pay for Longwood field, Caddo Parish, Louisiana, distillate crude.

An 8-cent a barrel price increase was posted July 18, by all crude purchasers in the Deep River and Adams fields, Arenac County, Michigan. This hike termed an adjustment raise, brought the price for these crudes from $1.97 to $2.05 per barrel. In addition the Simrall Corporation reported it was posting a price of $2.05 per barrel for West Branch, Clayton, Richfield and Foster crudes to become effective July 19. These are all Michigan fields. This new posting represented an increase of 11 cents a barrel for crude from West Branch and Clayton fields as the company had previously posted $1.94, and 4 cents for Foster oil for which the company had paid $2.01 per barrel. The posting for Richfield was the first made by Simrall.

Refiners who are not processing crude from fields affected by last week's 8-cent boost generally reported they contemplate no change in postings at present. However, one refiner whose crude was included in the hike and is now costing him $2.05 per barrel, reported an "across the board" increase of .25 cent to .5 cent per gallon.

Prices for some light products ranged higher at Philadelphia last week with announcement by The Atlantic Refining Company of advances of .4 and .5 cent in its postings for regular-grade gasoline, kerosine and No. 2 fuel oil. Atlantic's prices for regular-grade and No. 2 were upped .4 cent to 10.7 cents and 7.3 cents, respectively. New price for kerosine is 8.2 cents, up .5 cent.

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Crude Oil Prod. Week Ended	Runs to Stills Barrels Daily	Runs to Stills Week Ended	Crude Stocks Barrels	Crude Stocks Week Ended	Gasoline Stocks Barrels	Gasoline Stocks Week Ended	Gasoil and Distillate Stocks Barrels	Gasoil and Distillate Stocks Week Ended	Residual Fuel Oil Stocks Barrels	Residual Fuel Oil Stocks Week Ended
High:												
1942	4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	47,861	11-14	95,857	1- 8
1945	4,944	7-21	5,140	8-18	227,554	10-13	99,012	3-24	45,341	11-17	56,074	1- 6
1946	4,961	6-15	4,968	12-28	229,430	3- 2	105,233	2-16	[1]67,286	11- 9	61,036	11- 2
1947	[1]5,115	6-21	[1]5,229	7-12	239,370	5-31	107,576	3-29	58,034	1- 4	53,285	1- 4
Lows:												
1945	3,621	10- 6	3,409	10- 6	[2]211,813	8-25	70,791	10-13	26,483	3-17	38,548	5-26
1946	4,403	3- 9	4,498	1-12	218,198	1- 5	85,324	9-28	25,131	3- 9	37,289	4- 6
1947	4,531	4-11	4,667	4-12	220,313	2- 8	87,145	7-19	31,470	4-19	42,668	4-26

TRENDS OF 1946 AND 1947

Trends in Week Ended	Crude Oil Production Daily	Crude Oil Runs to Stills Daily	Crude Oil Stocks Week End	Gasoline Production Weekly	Gasoline Stocks Week End	Gasoil and Distillate Production Weekly	Gasoil and Distillate Stocks Week End	Residual Fuel Production Weekly	Residual Fuel Stocks Week End
1946:									
January 5	4,548	4,651	218,193	14,488	98,494	5,923	35,199	8,867	42,371
January 26	4,626	4,553	220,544	13,622	101,737	5,720	29,498	8,411	39,722
February 23	4,714	4,595	226,699	13,175	104,709	5,728	25,398	7,913	39,290
March 30	4,425	4,684	224,994	13,896	104,715	5,337	28,240	8,738	37,746
April 27	4,672	4,685	224,443	14,228	99,631	5,568	30,466	9,204	39,404
May 25	4,759	4,857	222,214	14,312	95,769	5,463	32,973	8,908	43,368
June 29	4,957	4,854	223,883	14,500	92,333	5,325	37,762	8,828	46,477
July 27	4,926	4,896	223,756	14,535	88,626	5,817	44,316	8,217	49,517
August 31	4,833	4,911	227,132	15,014	87,217	5,630	53,134	8,539	53,173
September 28	4,778	4,829	223,043	14,675	85,324	5,632	59,827	8,172	57,657
October 26	4,730	4,758	221,184	14,863	86,423	5,710	65,499	7,728	60,872
November 30	4,795	4,707	227,693	15,145	88,371	5,258	66,062	7,672	58,647
December 28	4,713	4,968	225,995	15,604	93,126	5,931	58,941	8,181	53,427
1947:									
January 4	4,649	4,917	223,291	15,281	94,882	5,857	58,034	8,375	53,285
January 25	4,672	4,820	221,655	14,624	99,801	5,630	50,357	8,224	48,558
February 22	4,786	4,860	224,580	14,668	103,904	5,929	40,739	8,542	44,919
March 29	4,865	4,843	227,529	14,396	107,576	5,969	32,737	8,668	43,364
April 26	4,930	4,725	235,383	14,213	103,860	5,435	32,286	8,186	42,668
May 31	5,024	5,000	239,370	14,709	95,876	5,732	36,032	8,910	45,224
June 28	5,109	5,093	236,221	16,070	91,806	5,006	41,721	8,298	48,490
July 5	5,065	5,109	233,810	15,759	89,674	5,659	43,000	8,485	49,151
July 12	5,045	[1]5,229	232,361	16,197	88,791	5,909	45,261	8,679	50,529
July 19, 1947	5,050	5,126	.....	15,747	87,145	5,912	46,505	8,969	51,542
July 20, 1946	4,937	4,817	[3]222,859	14,227	89,519	5,329	43,481	8,089	49,284
Change:									
In Week	+5	—103	—1,449	—450	—1,646	+3	+1,244	+290	+1,013
In Year	+113	+309	+9,502	+1,520	—2,374	+583	+3,024	+880	+2,258
In Year	+2.3%	+6.4%	+4.3%	+10.7%	—2.7%	+10.9%	+7.0%	+10.9%	+4.6%

[1] All time peak. [2] Lowest since December, 1921. [3] Stocks, July 13, 1946.

• Oklahoma

Garvin County East Lindsay Pool Given East Extension

East Lindsay pool of Garvin County extended east; second Alfalfa wildcat shows possibility of production; Gulf to test well in deepest producing field; independent operator extends Allen district northwest; outstanding discovery of year finds oil second time in a lower horizon; Witcher gas field extended east; production in Jones area extended west; 2 oil pools opened by Davon Oil Company.

Garvin County: Production in the prolific East Lindsay pool has been extended ½ mile east by Magnolia Petroleum Company's Lacy 1, CSE NW 5-4n-3w. The well flowed 70 barrels of oil per hour for 4 hours on a drill-stem test in the Bromide, topped at 9400 feet. On a previous drill-stem test at 9585-731 feet, with tool open 13 hours, oil showed in 4 minutes. Eight barrels of oil flowed the first 30 minutes, and 20 barrels the next 30 minutes. At the end of 9 hours the test had made 288 barrels of oil, using a ¼-inch top choke and a ½-inch bottom choke.

Alfalfa County: The second wildcat in Alfalfa County to show possibilities of production is The Texas Company's McArthur 1, NE SW SW 18-28n-12w, east of Capron. On a drill-stem test in the Mississippi lime, from 5034-64 feet, 250,000 cubic feet of gas was gauged in 24 hours. Testing will continue in the zone topped at 5030 feet. The other wildcat is Tom Ray et al's Pelter 1, CNE SE 21-25n-12w, southwest of Cherokee, which showed oil in the Mississippi at 6105-65 feet.

Grady County: Testing was underway at Gulf Oil Corporation's Ida 1, NW-NE NW 4-4n-6w, in the Chitwood pool, deepest producing field in Oklahoma. Seven-inch protective casing was run to 11,660 feet in the Springer sand, following increasing caving of the hole. Springer was topped at 10,350 feet. There are 4 producers in the field, 2 gas wells in the south end, and 2 oilers on the north end.

Seminole County: Production in the Allen area of southern Seminole County has been extended ½ mile northwest by Clark C. Nye, independent operator of Oklahoma City. Wilson 1, NE SW SE 2-5n-7e, found pay in the Gilcrease sand, at 2648-63 feet and is producing about 20 barrels of oil per hour. Sand was topped at 2633 feet.

Eola Area: The state's outstanding oil discovery during the year has found a second prolific zone below the Bromide sand, where it originally was completed, and indications are that the new zone, the McLish sand, will produce more oil and prove to be a greater reserve than the upper horizon. The well, Sohio Petroleum Company's Howard 1, discovery of the Eola field in 17-1n-2w, is drilling to 10,818 feet, and geologists believe more pay zones lie deeper. The test was brought in for a flow of 2400 barrels daily from a 140-foot section of the Bromide. A 21-hour drill-stem test on the lower zone, with ½-inch choke on bottom of the hole, recovered 627 barrels of 43-gravity oil per day.

Oklahoma County: The Oklahoma Natural Gas Company has extended gas production in the Witcher pool ½ mile east with the Oscar Lair 1, CSW SW 21-13n-2w. Both the unconformity zone at 6106-12 feet, and the Bois d'Arc section of the Hunton lime from 6122-35 feet were tested, and the well flowed approximately 7½ million cubic feet of gas per day on second test. Flow pressure was 1050 pounds with bottom hole pressure 2650 pounds. A drill-stem test at 6122½-71 feet in the Bois d'Arc gauged 6,2000,000 cubic feet of gas daily, with 25 gallons of distillate recovered. Total depth of the well, which is the fourth producer for the gas-distillate area, is 6171 feet.

Cleveland sand production of the Jones area has been extended ½ mile west by the Big Chief Drilling Company. Davis 1, SE NE SW 22-13n-1e, was swabbing at a rate of 200 barrels of oil per day from 4654-56 feet. Testing continued.

Garfield and Noble Counties: Davon Oil Company has opened 2 oil pools, 1 in Garfield County and the other in Noble County. Brunken 1, NE NW NE 32-23n-4w, in Garfield County, had 4000 feet of oil in hole when put on pump, and it is estimated good for 50 to 75 barrels of oil per day from the Second Wilcox at 6038-82 feet. The company's Tautfest 1, NE SW NW 32-24n-1e, Noble County, northwest of the Red Rock pool, is estimated good for 25 barrels of oil per day from 4305-80 feet. Total depth is 4526 feet.

Wells Completed in the United States in Week Ended July 19, 1947

Data preliminary and subject to revision. Revised and more complete data on all completions and exploration shown in monthly summaries published in last issue of each month.

State or District	FIELD COMPLETIONS: New Wells: Oil	Dist.	Gas	*Input	Dry	Total	Old Wells Deepened	EXPLORATORY COMPLETIONS: Oil	Dist.	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	This Week 1946
Alabama														1	
Arkansas	3		1		2	6		1			3	4	10	4	3
California	31				1	32					4	4	36	30	35
Colorado	3					3				1	3	4	7	6	4
Florida															1
Illinois	25				5	30	1	1			9	10	41	42	50
Indiana											3	3	3	12	17
Kansas	20		2	1	11	34	2				5	5	41	55	44
Kentucky											2	2	2	8	12
Louisiana	18		2		6	26		1			5	6	32	46	34
N. Louisiana	13		2		6	21		1			4	5	26	31	24
S. Louisiana	5					5					1	1	6	15	10
Michigan	11				2	13					9	9	22	10	21
Mississippi	7	1				8					2	2	10	16	2
Montana	6		2		2	10					1	1	11	3	7
Nebraska											1	1	1		
New Mexico	11		1			12					1	1	13	4	10
New York	13			14		27							27	30	26
Ohio	10		8		2	20					2	2	22	25	34
Oklahoma	20		2		17	39	3	1			6	7	49	98	73
Pennsylvania	24		12	22	5	63							63	59	52
Texas	118	2	7		38	165	3	8	1	5	36	50	218	216	186
DISTRICTS:															
1—S. Central	5		1		1	7					4	4	11	5	8
2—Middle Gulf	11		1		4	16		1		3	2	6	22	13	[1]
3—Upper Gulf	5				1	6		4	1		4	9	15	27	13
4—L. Gulf-S.W.	22	2	1		3	28	1	2		2	3	7	36	25	43
5—E. Central	1					1					2	2	3	7	[2]
6—Northeast	6					6					2	2	8	9	14
7-B—N. Central	13				8	21					6	6	27	27	[3]
7-C—W. Central											1	1	1	4	[4]
8—West	32				1	33	2	1			3	4	39	33	39
9—North	19				18	37					9	9	46	58	61
10—Panhandle	4		4		2	10							10	8	8
West Virginia	1		10		9	20							20	20	22
Wyoming	5		1			6							6	2	3
Total U.S.	326	3	48	37	100	514	9	12	1	6	92	111	634	687	636

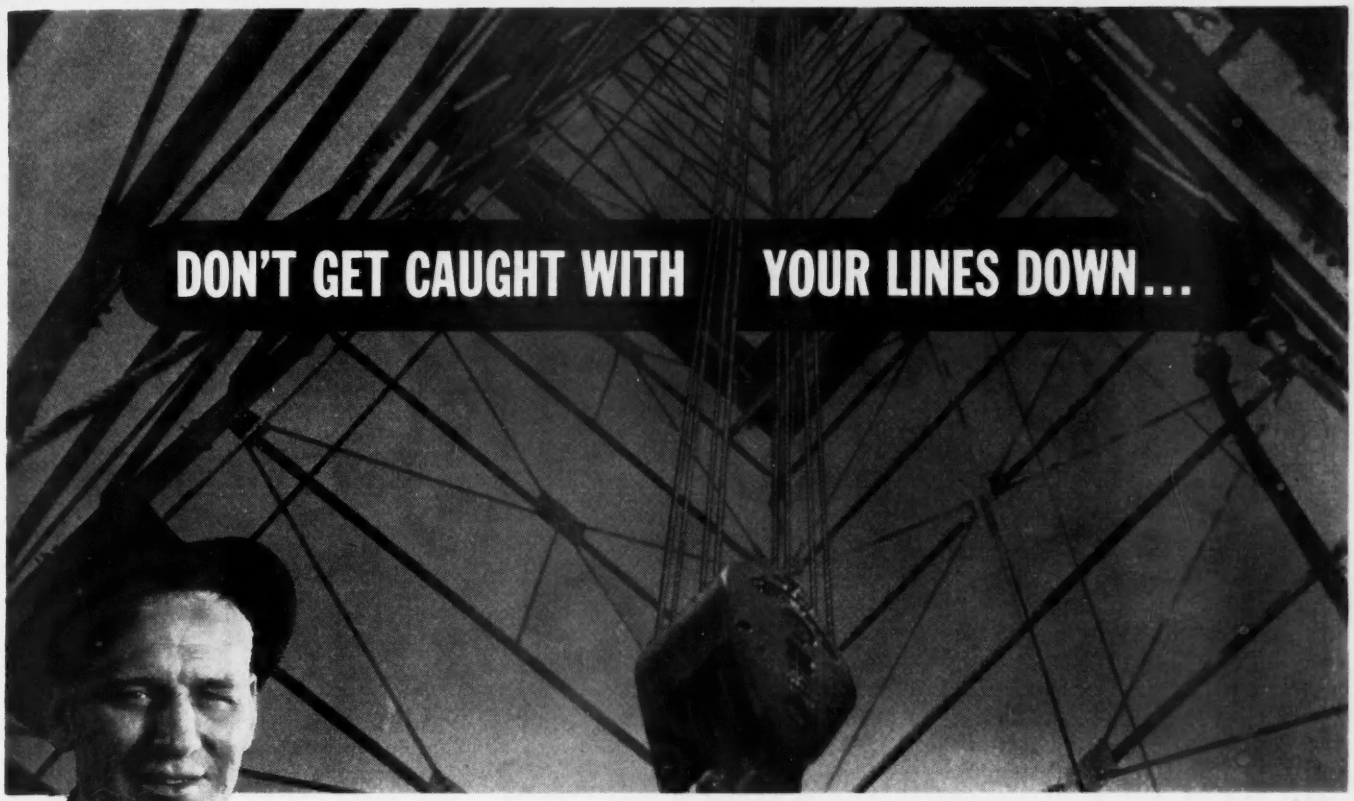
* Includes salt water disposal wells. [1] Middle Gulf included with Lower Gulf-S.W. [2] East Central included with Northeast. [3] North Central included with North. [4] West Central included with West.

• Kansas

Four Pool Openers in Three Counties Given Potentials

Four pool openers assigned state potentials; Continental well proves Arbuckle production in Rooks area; Rooks County wildcat plugs back from Arbuckle, finds production in Lansing lime; Graham County wildcat continues testing on pump.

Four discovery wells have been assigned state potentials. Two are in Stafford County, one in Ellis County, and the other in Rush County. Brunson & Adair's Howard 1, discovery of the Kenilworth pool, NW NW SE 15-22s-13w, Stafford County, was assigned a rating of 307 barrels of oil daily from the Lansing-Kansas City lime series, after Arbuckle lime was tested dry. Sohio Petroleum Company's Schrepel 1, SE SE SE 17-21s-12w, Stafford County, discovery of the Sandago pool east of the Saundra area, was rated at 363 barrels daily from the Arbuckle. Keyes Drilling Company's Marshall 1, NW NW NW 25-11s-18w, discovery of the Burnett South pool in Ellis County,



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was given a top potential of 3000 barrels daily from the Arbuckle lime. When drilled in it carried a minimum potential of 25 barrels per day pending state potential tests. Great Lakes Carbon Company's Dirks 1, discovery of the Rush Center pool, SW SW SE 16-18s-18w, flowed 122 barrels of oil a day from the Arbuckle lime. The pool is 12 miles west of the Otis pool and less than a mile north of the town of Rush Center.

Rooks County: Continental Oil Company's Gilbert 1, NE NE SE 6-9s-18w, continues to be one of the state's most closely-watched wildcats, and testing continued in the Arbuckle lime, at 3487-97 feet. Latest test showed 70 barrels of oil in 11 hours. Oil rose in the hole at the rate of 150 feet an hour when tools penetrated 5 feet of the pay zone.

Lowell Drilling Company et al's Hays 1, NE NE SW 28-9s-18w, which has averaged 30 barrels of 31-gravity oil per hour from the Lansing lime, at 3405-13 feet, continues swabbing at that rate from the Lansing-Kansas City series. It apparently will be completed from this zone, as Arbuckle lime was found dry. Production was established when operators plugged back to top of the Lansing-Kansas City, at 3322 feet.

Graham County: Testing on the pump continued at Wilcox Oil Company's Rush 1, NW NW NE 9-6s-22w, pool opener 6 miles southwest of the Ray area. On a 24-hour pump test in the Lansing lime the well averaged 17 barrels of oil per hour following initial acid treatment. Casing has been recemented, due to water entering the Lansing pay from higher up the hole. Arbuckle was found dry.

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• New Mexico

Monument Field Test Passes Up Deeper Permian Oil Zone

Ellenburger test in Monument field passes up deeper Permian oil zone; prolific oil flow from Ellenburger developed by Brunson field outpost; Otero County wildcat authorized.

Lea County: Amerada Petroleum Corporation's Phillips 5, C NE NE 1-20s-36e, scheduled Ellenburger test for the Apex of the Monument field's Permian structure, revealed that this area may share in deeper production in developing a flow of 50 barrels of oil hourly from the Glorietta lime at 5223 feet. The test was drilling at 5780 feet with the Yeso (Drinkard) as the next potential oil zone.

Repollo Oil Company was completing 2 wells from the Yeso on the east side of the Brunson field. The company's Brunson 7 developed 6 million cubic feet of gas from the upper section at 6463-520 feet and was deepening to the oil zone. The company's joint test with Cities Service Oil Company involving Brunson 3-B, C SW SW 3-22s-37e, flowed 200 barrels initial through ¾-inch choke after acidizing open hole at 6500-70 feet.

Amerada's Walden 4, C NW SW 15-22s-37e, ¼ mile west of the most southerly Ellenburger producer in the Brunson area, emphasized that this sector if subject to expansion in flowing 501 barrels of oil on 14½-hour test through ½-inch choke from perforations at 7794-910 feet, including oil pay in granite-wash, topped at 7898 feet. Amerada's Hare 6, NW SW 33-21s-37e, northwest edge of the Brunson field and structurally low, apparently exhausted its production in flowing 334 barrels of oil on 13-hour test through ½-inch choke from perforations at 8110-60 feet. Reacidizing failed to revive the flow. This outpost may be completed as the first Simpson producer for the state as it passed up flow of 195 barrels of 42-gravity oil on 4-hour gauge through testing tool at 7660-843 feet. Other Ellenburger wells had indicated production from the Simpson but passed up the zone for the more productive Ellenburger dolomite.

Otero County: Standard Oil Company of Texas is building roads for the drilling of a projected 6000-foot wildcat on its Scarp permit in the southeast corner of the county.

Rail Commission Boosts Allowables on Gulf Coast

An increase in Gulf Coast allowables totaling 11,205 barrels effective July 10 was ordered by the Texas Railroad Commission recently. Railroad Commission Chairman Ernest O. Thompson announced the increases were granted in compliance with requests that several Gulf Coast fields have allowables raised to the most efficient rate.

The new allowables were fixed for the following fields: Hitchcock 920 barrels, Labelle 1680 barrels, Port Neches, North 873 barrels, Port Neches, West 1200 barrels, Silsbee 3000 barrels, Thompson 36,000 barrels.

In addition to these scheduled allowable increases, the commission changed the shutdown days for other fields so that they will be permitted to produce more.

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• West Texas

Crockett County Ellenburger Discovery Has Thick Pay

Ellenburger discovery in Crockett County has thick pay section; Crane County wildcat yields small amount of oil from Basal Permian; largest operator in Post area authorizes 18 new tests on strength of early completion of a pipe line outlet; Levelland field defined to the east.

Crockett County: Sinclair Prairie Oil Company and The Atlantic Refining Company's University 1-66, C SW NE Sect. 30, Block 46, and 8½ miles northeast of the Todd-Ellenburger field, nearest production, developed oil flow after drilling through gas-cap zone of Ellenburger, topped at 7396 feet, with elevation 2680 feet. This wildcat is on a block of 2492½ acres acquired by Sinclair at the December 14, 1946, University lease sale for a record price of $910,000 cash, plus a drilling obligation. The initial drill-stem test of the Ellenburger gas-cap zone at 7396-438 feet yielded gas to the surface within 1 minute for an estimated flow of 10 million cubic feet daily with some distillate. A second test at 7438-76 feet yielded gas at the rate of 2,129,000 cubic feet daily. Gas and 49.2-gravity distillate were recovered at 7470-512 feet, with shutin bottom hole pressure 3200 pounds. The first and most effective oil pay prevails in a section at 7512-62 feet, as a 42-minute drill-stem test of this zone yielded gas to the surface within 50 seconds for a rated flow of 2 million daily, and a flow of 40 barrels of 44.8-gravity oil, with gas-oil ratio of 1040/1, in ½ hour. A fifth drill-stem test at 7562-608 feet, or 212 feet in the Ellenburger, returned gas to the surface within 70 seconds at a rate of 580,000 cubic feet daily, and a flow of 12½ barrels of oil in 1 hour, with trace of water in breaking down drill pipe. However, this water is classed as drilling fluid residue since tests at 7598-608 feet showed a small blow of gas and no oil or water. A new test was under way at 7640 feet.

The extent of production covered by the Crockett County discovery is speculative due to its isolation from previous tests, but conservative evaluation of the shooting picture indicates possibly 3000 productive acres, with a steep dip to the east. This sharp structural drop was recently substantiated by Amerada Petroleum Corporation's University 1-CTA, Cambrian failure 6¾ miles east that entered the Ellenburger at 8102 feet, or 773 feet low to the new strike. Ted Weiner et al's Vaughn-Richfield 1, 5⅓ miles south of the discovery, was abandoned at 7785 feet in Ellenburger, topped at 7540 feet, or 208 feet low. These 2 failures and the discovery logged Pennsylvanian shale overlying the Ellenburger, while the nearby Todd prolific deep area has varying thickness of Crinoidal (Pennsylvanian) and Simpson above the Ellenburger. Crinoidal oil production in the Todd area is restricted to the east portion of the 3360-acre producing structure.

The previous record price bonus for a University Lands drilling block involved $900,000 paid by Stanolind Oil & Gas Company for 4026 acres that resulted in the discovery of the Three Bar field, which has 5 Devonian flowing wells averaging 71 feet of Devonian-pay perforations per well. Stanolind completed 1 failure.

Humble Oil & Refining Company's Mitcham 1, NE NE D&SE 12, Block AB, and 3 miles south by east of a recently completed Cambrian lime failure at 9054 feet, is showing for a prospective gas-distillate discovery in Ellenburger, topped at 8025 feet, or 96 feet low to the failure.

Mitcham 1 showed gas at the rate of 833,000 cubic feet daily when tester was used at 50 feet in the Ellenburger. A retest of the section yielded 480 feet of distillate and gas-cut mud and 90 feet of salt water. The latter has been tentatively classed as formation water. A third test was pending at 8077 feet.

Crane County: The Texas Company's Connell 31, C NW SW PSL 29, Block B-16, 3 miles west by south of Ellenburger production in the Jordan field and a failure in the Ellenburger at 9805-9967 feet, swabbed ¼ barrel of oil hourly after acidizing Basal Permian perforations at 6920-55 feet. More acid treatments will follow to try to attain commercial production.

John I. Moore et al's Barnsley 3, C NE SE PSL 41, Block 32, and 2 miles northeast of a 6829-foot Simpson failure on the southeast edge of the Sand Hills structure, was drilling at 6570 feet after developing water at 6190-490 feet. Drill-stem tests at 6014-6193 feet, tentatively identified as Devonian, yielded a nominal show of oil and gas.

Garza County: George Brown, Herman Brown and Comanche Corporation, joint owners of the largest producing properties in the Post area, have authorized the drilling of 18 additional tests

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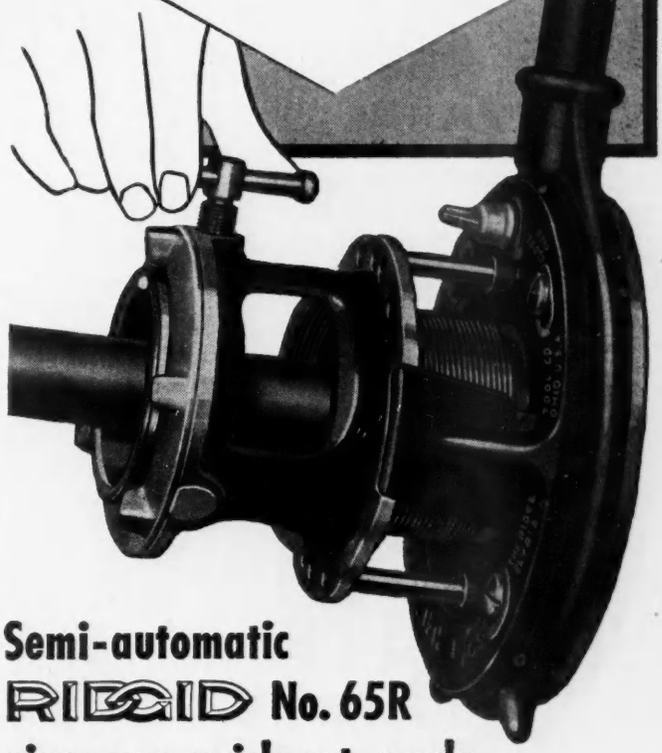

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in anticipation of a larger crude market outlet. This area has been dependent upon a small local refinery and tank car shipments, but Stanolind Pipe Line Company is building an extension from its West Texas trunk line to the field. This direct outlet is due to be completed within 60 days.

Hockley County: Amerada's Beakley 1, 2¾ miles northweast of production in the Levelland field, and 1½ miles east by south of its recent failure on the Shofner tract, was abandoned at 5017 feet, correlating about 100 feet low to the failure.

Ector County: Humble Oil & Refining Company's Yarbrough-Allen 1, wildcat in the southwest portion of the county that passed up probable production in the Devonian, was drilling at 9660 feet in the Upper Ordovician. No shows were recorded in the Silurian, topped at 8815 feet, with the Fusselman beds at 9000 feet. The geologic column compares fairly close to that of the Wheeler field to the northwest.

• North Texas

Mississippian Is Third Oil Horizon for Kendall Field

Kendall field has third oil zone through completion of flowing well from Mississippian; Baylor County wildcat shows promise of oil production from Canyon; semi-wildcat in Clay County logs oil-saturated Bend lime.

Young County: Warren Oil Corporation's Allar & Deats 1-A, SW SW SW BS&F Ry. 3, A-43, offsetting 3400-foot Bend and 4200-foot Marble Falls oil production on the northwest edge of the Kendall field, confirmed a third zone in flowing 110 barrels initial, with gas-oil ratio 1900/1, on natural test through ¼-inch choke from open hole at 4552-61 feet. This production is from the Mississippian, topped at 4549 feet, and is the first test of this zone for the immediate area. Allar & Deats 1-A passed up oil flow developed through testing tool from Basal Bend conglomerate at 4192-208 feet, and indicated production in the Marble Falls, topped at 4218 feet.

Baylor County: P. P. Langford, Jr., et al's Cowan 1, NW SW NE T&NO Ry. 91, ¾ mile southwest of Fulda and 2 miles northeast of the Seymour field, landed pipe at 2820 feet after indicating a probable oil pumper in drilling Canyon saturation at 2820-36 feet. This wildcat is on a geological trend from the Seymour field.

Clay County: Grace & Grace et al's B. Edwards 1, northwest corner of Block 41, Marion County School Lands, and ⅝ mile southeast of Bend production in the Bryant Edwards 5-well pool, was making production test of oil-saturated lime at 6158-84 feet. The Bend was entered at 5926 feet, or 15 feet low to the nearest producer.

Gulf Oil Corporation's Spring 22, near C NE H&TC 36, Block 4, west outpost for the Spring sector of the Ringgold-Worsham field, developed first Strawn production in flowing oil by heads through testing tool from sand at 4888-907 feet. It was drilling at 5177 feet to explore the regular Bend zone before running pipe for completion.

Childress County: Amerada Petroleum Corporation's Middleton 1, C SE NW W. & N. Ry. 388, Block H, Kirkland prospect, was drilling lime and shale at 6975 feet without shows. The Canyon was entered at 4805 feet and Strawn at 5520 feet, with elevation of 1669 feet.

Denton County: The Texas Company's Saunders 1, John Ayers Survey, encountered salt water in Strawn at 1977-2000 and 2310-30 feet after passing up nominal shows in upper sands. It was drilling at 2340 feet. More prospecting will occur in this sparsely explored area.

• East Texas

Anderson County Wildcat May Be Producer from Rodessa

Anderson County wildcat showing for prospective oil producer from Rodessa series; Boynton field has failure in Paluxy; Fairfield outpost is barren in Paluxy.

Anderson County: Sanders and Murchison's Broadway 1, I. P. Reinhardt Survey and 3 miles east by south of Blackfoot, logged adequate oil and gas pay in the Upper Rodessa to indicate a discovery before reaching water, and was running electrical formation log at 9192 feet. This wildcat logged base of the Massive Anhydrite at 8865 feet, with elevation 328 feet. A drill-stem test of Rodessa porosity at 8956-71 feet resulted in the well flowing 41-gravity oil, gas and rotary fluid by heads while pulling drill pipe. No formation water was present, and the shutin bottom-

THE OIL MAN'S CALENDAR

AUG. 11–13	Interstate Oil Compact Commission, Great Falls, Mont., Rainbow Hotel.
25–27	Annual Appalachian Gas Measurement Short Course, West Virginia University School of Mines, Morgantown.
SEPT. 10–11	Rocky Mountain Oil & Gas Association, Fall Meeting, Casper, Wyo.
17–19	National Petroleum Association Annual Meeting, Atlantic City, Traymore Hotel.
23–24	Fall Meeting, Petroleum Division, AIME, Los Angeles, Elks Club.
29–30	Annual Meeting Independent Petroleum Association of America, Oklahoma City.
28 to Oct. 2	Regional Meeting, AIME (includes 2-day Petroleum Division Session), Denver.
OCT. 6– 8	American Gas Association, Annual Meeting, Cleveland.
6– 8	ASME Petroleum Mechanical Engineering Conference, Houston.
8–10	Fall Meeting, Petroleum Division, AIME, Tulsa, Mayo Hotel.
13–15	Annual Meeting, American Association of Oil Well Drilling Contractors, Long Beach, Calif.
16–17	Texas Mid-Continent Oil & Gas Association, Annual Meeting, San Antonio, Gunter Hotel.
NOV. 10–13	American Petroleum Institute Annual Meeting, Chicago, Stevens Hotel.
1948 MAY 15–22	International Petroleum Exposition, Tulsa.

Nomads Chapter monthly meetings: LOS ANGELES, second Wednesday, Jonathan Club. HOUSTON, second Monday, Ye Olde College Inn. NEW YORK, first Monday, Louis Sherry's. TULSA, third Wednesday, Hotel Tulsa. DALLAS, date not yet fixed.

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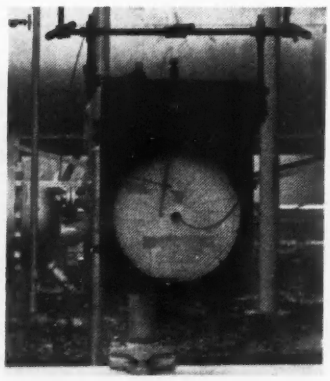

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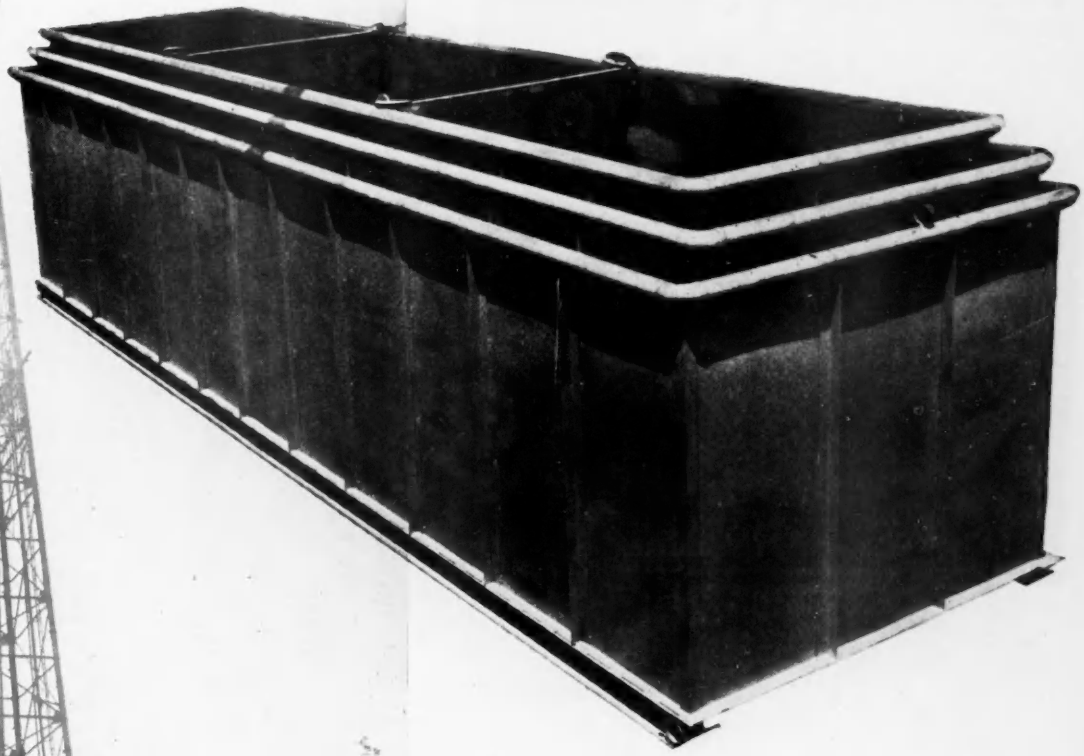

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hole pressure was calculated at 4450 pounds within 9 minutes. A second drill-stem test at 9033-58 feet yielded a small amount of gas and some salt water.

Continental Oil Company and Byrd & Frost, Inc.'s Royall 1, Slocum prospect, logged base of the Massive Anhydrite at 8000 feet, with elevation 384 feet, and the Rodessa proved barren in drilling at 8780 feet. It will continue to the Travis Peak.

Smith County: Humble Oil & Refining Company's Williams 1, west by north offset to the discovery of the Boynton 2-weil pool, tested salt water in the Paluxy, topped at 7530 feet, with elevation 571 feet, and was drilling water sand at 7820 feet.

Freestone County: The Texas Company's Irvin 1, Frances O'Neal Survey and a south outpost for the Fairfield multi-pay field, entered dry Paluxy series at 6080 feet, with elevation of 549 feet, and was drilling at 6345 feet.

Wood County: Humble's McKnight 1, prospective deep-pay discovery for the Hawkins field, has failed to improve its output after acid treatments of open hole at 8935-66 feet after plugging back from 14,629 feet. Latest test rated the flow of distillate at 25 barrels daily with about 1 million cubic feet of gas on ¼-inch choke. Humble's Phillips 1, projected Rodessa test after failing to produce in the Woodbine, was drilling at 6520 feet.

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Harrison County: Several wildcats were active in this county though none had reached a decisive stage. Byrd Oil Company was still testing Mrs. Cleve B. Jobe 1, Sarah Reynolds Survey, in the Waskom field area. Total depth is 6204 feet.

Southern Production Company's W. H. Cargill Estate 1, P. Dougherty Survey, recovered limy shale with odor and taste of oil on a core, but a drill-stem test at 4230-44 feet, recovered only gas-cut mud and salt water. Drilling was resumed.

Stanolind Oil & Gas Company's wildcat, George Slaughter 1, J. E. White Survey, is drilling below 8290 feet.

Shelby County: Humble Oil & Refining Company's Elzie Fleming et al 1, John Hailey Survey, third test in the Huxley field, was reported to have found 25 feet of sand showing oil around the 6900-foot level, just below the Pettit lime. The test is drilling below 7292 feet in lime and shale with little information being released.

Early Registrations Urged For AIME Meeting in Tulsa

Members of AIME, Petroleum Division, who plan to attend the 1947 fall meeting in Tulsa, October 8-10, should make hotel reservations as soon as possible, according to P. P. Manion Jr., chairman of the committee in charge of arrangements of the Mid-Continent Section, which will be host at the meeting. Early reservations are urged because of the Tulsa Horse Show which coincides with the AIME, Petroleum Division, fall meeting dates.

Approximately 300 out-of-town members are expected to attend the three-day session. Registration will be at the Mayo Hotel. Social activities will include a stag party, dance and banquet. A special program is being prepared for the ladies, including a sight-seeing tour, luncheon, tea, dinner and a style show.

The technical program will include the presentation of between 12 and 15 papers. About five technical sessions and a business meeting will be held.

• South Central Texas

Mile Northeast Outpost for Charlotte Field Is Spudded

Northeast outpost at Charlotte spudded; producer completed at Weigang; wildcat northeast of Seguin abandoned; Del Monte well waiting on potential test.

Atascosa County: Humble Oil & Refining Company has spudded Lujan 1-C, northeast outpost at Charlotte field and approximately a mile from production. It is scheduled to test the Navarro sand.

A completion at Weigang field is H. R. Smith et al's Jessie Henderson 3, located 1275 feet southeast of the No. 2 well. On potential the well flowed 85 barrels of 24-gravity oil daily through ⅛-inch choke with gas-oil ratio 50/1, tubing pressure 225 pounds and casing pressure 50 pounds. Total depth is 3860 feet with 7-inch casing set on bottom and perforated at 3828-34 feet for completion.

Guadalupe County: A dry hole is Cecil Hagen et al's Calvert 1, located 4 miles

northeast of Seguin. Total depth is 4390 feet with no shows encountered. Tops were the Austin chalk at 1443 feet, Edwards lime at 1844 feet, and Glenrose at 2308 feet.

Zavala County: The Texas Company's Cross S. Ranch 3, located 1320 feet northwest of the discovery at Del Monte field, was waiting on potential test. The well was estimated good for 25 barrels of 24-gravity oil daily on gas lift. Total depth is 3364 feet with 7-inch casing set to 3357 feet, completion being from open hole.

• Southwest Texas—Lower Coast

La Reforma Area Wildcat Is Dually-Completed Discovery

Wildcat 3 miles north of La Reforma being dually completed as a discovery; southeast flank well at Wilson being completed in new sand; Stanolind still testing in wildcat northwest of Ricardo field.

Starr County: J. Simmons' First National Bank of Mission 1, wildcat 3 miles north of La Reforma field and 2½ miles southeast of Kelsey-Deep field, was being dually completed as an oil discovery. The well flowed on initial tests at the rate of 6 barrels of oil per hour from perforations at 6112-17 feet and at the rate of 8 barrels of oil per hour from perforations at 6422-27 feet. Total depth is 7505 feet with 5½-inch casing set to 6504 feet for completion.

Jim Wells County: On the southeast flank of the Wilson field, Magnolia Petroleum Company's Russell 2 has been completed in a new sand. The well flowed 101 barrels of 56.9-gravity condensate daily through 11/32-inch choke with 1734 pounds tubing pressure, casing sealed, and gas-condensate ratio of 37,971/1. Total depth is 8500 feet with 7-inch casing set to 7930 feet and perforated at 7158-70 feet for completion.

Kleburg County: Stanolind Oil & Gas Company's Johnson 2, wildcat 3½ miles southeast of Kingsville and 1½ miles northwest of Ricardo field, was still making production tests. A test at 6168 94 feet, using ¼-inch and ⅜-inch chokes, developed 4 pounds working pressure in 20 minutes and recovered 2300 feet of oil and 1100 feet of salt water. A test at 6186-96 feet developed 1300 pounds working pressure in 2½ hours and recovered 90 feet of oil, 400 feet of oil-cut mud, 120 feet of salt water, and flowed considerable gas. Perforations at 7830-36 feet, 7738-44 feet, and 7440-46 feet yielded gas and condensate.

• Middle Texas Coast

Major Extensions to Yoward Field Are Being Completed

Two major extensions to Yoward field being completed; Texas Company completes gas discovery west of Edna field; Casing set in outpost at Kitty West field.

Bee County: Two major extensions of the new Yoward field were being completed. Mills Bennett et al's Sherwood 1, located 1 mile northeast of the Yoward discovery in Henry Coley Survey, Abstract 138, was being completed from perforations at 7507-10 feet in the Slick sand. The well was estimated good for

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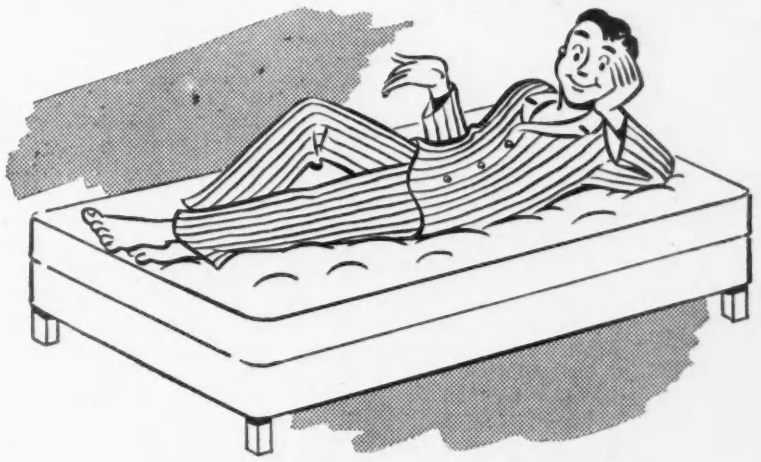

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75 barrels of oil daily on 5/32-inch choke with 550 pounds tubing pressure. Total depth is 7653 feet. Rowan & Hope's Rio Oil Corporation 1, located 2 miles southwest of the discovery at Yoward field, also was testing in the Slick from perforations at 7575-85 feet. Initial perforations at this interval flowed oil and gas with a little salt water and were squeezed in an attempt to cut out the salt water flow. Total depth is 7868 feet.

Jackson County: The Texas Company's Drushel 1 has discovered a gas-producing area 3 miles west of the Edna field. Total depth is 5018 feet with hole plugged back to 2580 feet and 5½-inch casing set to 2610 feet. Casing has been perforated just above 2610 feet and the well completed for 8 million cubic feet of gas per day on open flow.

Live Oak County: Continental Oil Company's Kitty West Schreiner 1-A, outpost in the southeast extension area of Kitty West field, has set casing and was making production tests. Tests prior to setting casing yielded salt water in the Slick sand at 6778-88 feet, gas-condensate in the Luling at 6881-88 feet, and gas, oil and salt water at 6888-94 feet. Total depth is 7400 feet with 6-inch casing set on bottom.

Indian Lease Sale Set

Sealed bids will be received at the Consolidated Ute Indian Agency, Ignacio, Colorado, until 2 p. m. August 20, for oil and gas lease on Southern Ute Tribal Indian lands. The land is located in Sectoin 7-33N-2W, Archuleta County, Colorado, and covers approximately 360 acres.

• Upper Texas Coast

Gas Production Discovered Northeast of El Campo Field

Gas-producing area discovered northeast of El Campo field; Grant and Petkas complete gas discovery; Humble tests Sugar Valley southeast wildcat; potential run on Altair south outpost.

Wharton County: Seaboard Oil Company of Delaware's Holub B-1 discovered a gas-producing area ½ mile northeast of production at El Campo field. From perforations at 6093-100 feet the well flowed 3,232,000 cubic feet of gas daily through ¼-inch choke with 2190 pounds tubing pressure. Open flow calculation was 6½ million cubic feet of gas daily. This producer is in W. D. Ivey Survey, A-561, Sect. 48.

Ralph H. Grant and J. P. Petkas were completing M. F. Rooker 1 as the discovery of another gas-producing area. From perforations at 4049-55 feet the well developed 1500 pounds working pressure in 5 minutes and flowed gas with a small amount of condensate through ⅛-inch choke. A cement plug was set in the hole and another test was made of perforations at 3199-211 feet where a drill-stem test developed 80 pounds working pressure and flowed a small amount of gas and water. These perforations have been squeezed, the cement plug drilled out, and the well was being completed as a gasser in the 4000 foot sands.

Matagorda County: Humble Oil & Refining Company set production casing and was making production tests in Truitt and Gravier 1, wildcat a mile southeast of production at Sugar Valley field. Total depth is 11,486 feet and it was reported the well encountered deep sands with shows comparable to those at Sugar Valley field. This well is in the Freeman George Survey, Abstract 50.

Colorado County: Potential tests have been run on The Superior Oil & Gas Company's Alfred Meyer 1, dually-completed south outpost at Altair field. Well flowed a potential of 296 barrels of 56-gravity condensate daily and 1,015,000 cubic feet of gas through 13/64-inch choke from perforations at 8265-73 feet. Tubing completion was from open hole at 10,150-90 feet where it flowed a potential of 15 barrels of condensate and 510,000 cubic feet of gas daily through ¼-inch choke.

• South Louisiana

Queen Bess Island Wildcat Tests Gas and Condensate

Gas and condensate tested in Texas Company's Queen Bess Island deep wildcat; production at Longville field extended 1400 feet northeast; well on south flank of Cameron Meadows being completed in deep producing sands; Sun reworking Moss Lake area discovery.

Jefferson Parish: Gas with a small amount of condensate has been tested in The Texas Company's Lafourche Basin Levee District 1, wildcat in 30-20s-25e, Queen Bess Island area. The deepest test drilled in South Louisiana to date, the hole is bottomed at 15,523 feet. Casing is set to 13,998 feet with perforations just below 13,900 feet for the test which developed 4000 pounds pressure while flowing through ⅛-inch choke. This well is 1½ miles west of the State 1 gas well at Queen Bess Island field.

Beauregard Parish: Barnsdall Oil Company's Long Bell Lumber Company 4-B has extended production at Longville field approximately 1400 feet northeast. A drill-stem test of perforations at 8182-8204 feet flowed 194 barrels of oil daily through ⅛-inch choke with gas-oil ratio 1661/1. Total depth is 8268 feet with 5½-inch casing set to 8264 feet.

Cameron Parish: Magnolia Petroleum Company's Cameron Meadows 46, south flank of Cameron Meadows field, is being completed in deep producing sands. From perforations at 8834-36 feet the well flowed on initial gauge 118½ barrels of 41.5-gravity oil daily through 6/64-inch choke with 3240 pounds tubing pressure and gas-oil ratio 6939/1. This well is 500 feet southeast of the Cameron Meadows 45, deep sand discovery which produces gas and condensate from perforations at 8686-96 feet. Most production in the Cameron Meadows field is from the 4300-4400-foot level.

Calcasieu Parish: Sun Oil Company is reworking Louisiana Farm & Livestock 1, discovery in the Moss Lake area, and is testing in a new higher sand. Perforations have been made at 8844-88 feet where the well flowed at the rate of 146 barrels of oil daily through ⅛-inch choke with 1850 pounds tubing pressure. Original perforations were made at 8970-78 feet where the well flowed at the rate of 11 barrels of oil hourly through ⅛-inch choke but gradually went to gas.

Inflation

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• North Louisiana

Ora Outpost, Union Parish, Expected to Be Producer

Ora outpost expected to make production; good oiler completed in field's Nacatoch pay; Pine Island continues active drilling; Logansport deep test nears 9000 feet.

Union Parish: R. T. Sellars and Wilson Ewing's wildcat P. J. Tucker 1, C NW NW NW 3-21n-1w, 1½ miles south and ½ mile west of Ora field production, are running 5½-inch casing to the Nacatoch sand to test. Total depth is near 2700 feet. Exact information still is being withheld by operators, but observers believe the well is an assured commercial producer.

Shell Oil Company has completed another producer in the Ora field, the best Nacatoch producer completed there. Frost Lumber Company 5-A, C SW NW NE 23-22n-1w, was flowing 157 barrels of 35.4-gravity oil daily through 16/64-inch choke with .1 percent basic sediment and water. The gravity of other Nacatoch producers is between 28 and 29 degrees. The well is producing through perforated lime from 2134-37 feet. It is 1320 feet west and 660 feet north of the discovery and is in the south 40 acres where Shell drilled a core test which originated a leasing play.

Shell abandoned Frost Lumber Industries A-3, 24-22n-1w, east offset to Frost A-5, at 2262 feet. So little oil showed on earlier tests that the well was never cased for production.

Caddo Parish: The old Pine Island field is the most active shallow area in North Louisiana. Three oil wells and 1 gas well were completed in a week, with Sam Sklar's Wadkins 9, NE NE 27-21n-15w, getting record production of 246 barrels of oil in 24 hours from the chalk at 1438-548 feet. Eleven permits for chalk tests were applied for in a week.

De Soto Parish: Skelly Oil Company's deep test on the north flank of the Logansport field, Thelma Nash 1, SW NE 30-12n-16w, is drilling below 8793 feet.

Aviation Gasoline Plant Offered for Sale by WAA

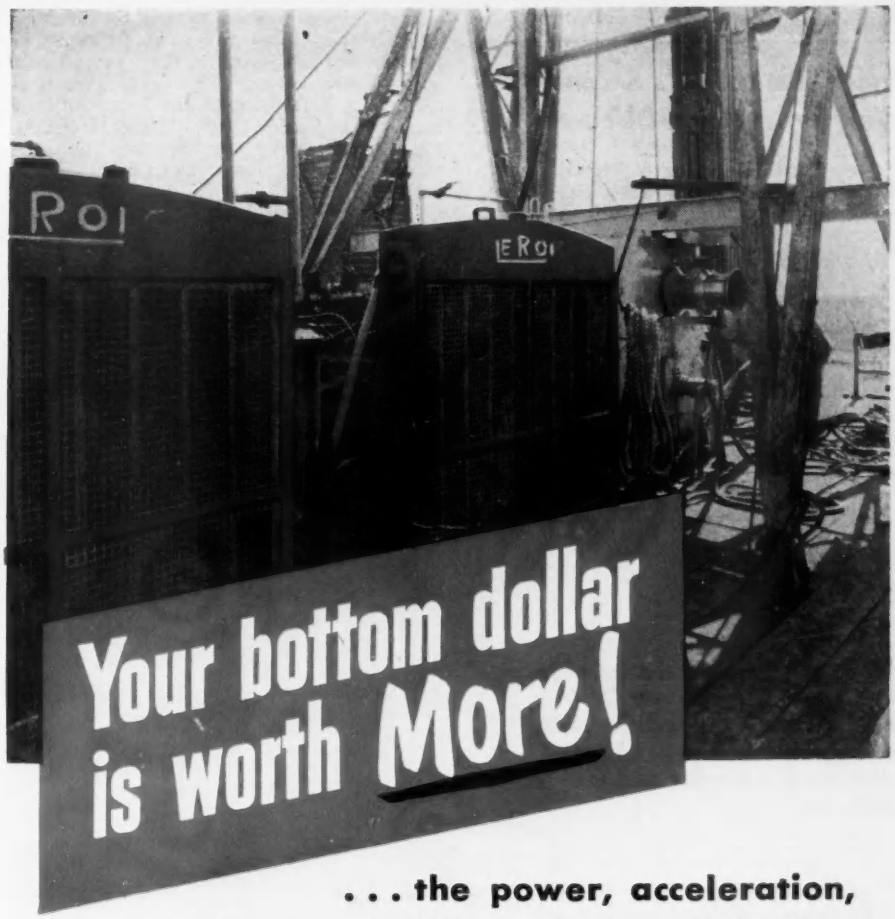
The War Assets Administration will open bids August 4 at its Houston regional office for sale or lease of the aviation gasoline refinery operated during the war by the Southport Petroleum Company near Texas City, Texas.

The plant, which cost $11,498,000 to build, produced 100,000 barrels of 100-octane gasoline a month. It is completely equipped and has a connection with the war emergency pipe line and a 14-inch gasoline pipe line to the Texas City oil docks.

WAA is inviting bids for the purchase or lease of the property as a whole, or for the purchase of the production equipment separately for off-site use.

Disposal Group Formed

The Crescent Salt Water Disposal Association has been organized to begin a program of disposal in the Crescent field of Logan County, Oklahoma. First application was filed by Continental Oil Company for use of two wells on the W. J. McConnel lease in the southeast quarter of 28-17n-4w. The Oklahoma Corporation Commission has set hearing on the application for September 2.



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• Arkansas

Sandy Bend Area's Second Well Better Than Discovery

Second well in Sandy Bend area is better than discovery; Gum Creek field gets good oiler; third Travis Peak failure for Buckner field.

Union County: The second well of the Sandy Bend area, Robert C. Wallingford's J. R. Winn 1, C NE NE SE 14-18s-13w, flowed 125 barrels of oil in 15 hours through ⅛-inch tubing choke, a big improvement over the discovery well, J. L. Perry's Callie Dupe 1, SW NE NW 13-18s-13w, which completed for 69 barrels of 28-gravity oil and 39 barrels of salt water. Winn 1 is producing through 36 perforations from 3494-500 feet opposite sand in the Travis Peak section, topped at 2805 feet. The discovery is producing from lens sand in the Travis Peak at 2888-92 feet. Following the excellent showing of the confirmation well, Root Petroleum Company went back to Citizens Bank B-1, C NW SE NW 13-18s-13w, considered in the East Urbana field, and deepened it from 3285 to 3585 feet. Casing was being cemented for production test.

Ouachita County: The Carter Oil Company's Crowley-Wilson 2, SE NE 27-15s 18w, was completed as the best oil producer in the Gum Creek field. It is flowing 69 barrels of oil in 13 hours, 11/64-inch choke, with gas-oil ratio of 2130/1. The well was perforated from 1610-18 feet in the Nacatoch sand. This record completion is expected to lead to further development in the area.

Columbia County: Justiss-Mears Oil Company's J. N. McNess 1, C NE SE 16-16s-22w, old Buckner field, is the third Travis Peak failure for the area, having been abandoned at 4890 feet. The Travis Peak, topped t 4327 feet, carried non-commercial showings of oil from 4879-83 feet. Spartan Drilling Company has obtained permits for 3 new tests in the field.

Exception to Fire Walls Rule in Kelsey Area Asked

The Humble Oil & Refining Company last week made an unusual request of the Texas Railroad Commission. It asked for an exception to Statewide Rule 50 which requires fire walls around all tanks.

The exception was to apply to the Kelsey area, Starr County, only, where the soil is so sandy that fire walls blow away, sometimes within 48 hours after they are constructed. To support its case, Humble poured oil on the ground and had engineers observe that it disappeared within four minutes, and one barrel of oil saturated an area of some 60 square feet.

Thus the company contended that no oil overflow would ever reach the fire walls but would seep into the ground. And therefore in this field the walls would serve no useful purpose.

• Mississippi

Test Rigging Up in Area of Union's Parker 1 Prospect

Another test projected in area of Parker 1, Jones County; Stone County test to be deepened; Mallalieu field outpost attempt prepares to acidize.

Jones County: Union Sulphur Company's Earline Parker 1, NEc 31-10n-10w, wildcat which previously had developed saturated sand section in the Eutaw zone, was running 7-inch casing to 7248 feet. Cores of the lower Tuscaloosa have recovered shows below 6900 feet. Cores of the Massive sand zone topped at 7026 feet have recovered ashy sand with no shows. Union also is rigging up for another test to be located south of the Parker in 8-9n-10w with drilling scheduled to the Tuscaloosa. Gulf Refining Company's L. L. Majors 1, SEc NE 29-6n-11w, continued with core tests below 12,735 feet. Glen Rose Anhydrite was topped at 12,707 feet with no shows recovered in that zone so far.

Amite County: Gulf Refining Company's J. A. Rowland 2, 29-4n-2e, the second of Gulf's exploratory attempts in the area, is drilling below 9521 feet. Rowland 1, abandoned earlier in the year, had encouraging shows below 11,200 feet.

Stone County: Geo. Vasen's Fee 1, SW NE 9-2s-11w, abandoned late last year in the Paluxy section below 11,209 feet, is preparing to deepen into the Lower Cretaceous. The potential productive zones were all explored in the original test with Wilcox topped at 2616 feet. First sand at 7022, and Massive sand at 8317 feet. No shows were noted at any point. Richard Norton Jr.'s L. N. Dantzler Lumber Company's 5, NW NW 2-4s-11w, 10,000 foot test, is working below 2511 feet after running elec-

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trical log to that depth. No shows have been noted.

Lincoln County: C. H. Osmond's Grady Jordan 1, NW NE 29-6n-8e, outpost attempt in the Mallalieu field, was preparing to acidize after other efforts to establish production failed. Casing was perforated at 10,481-94 feet and flowed about 12 barrels an hour until the well died. Roeser & Pendleton's Cora Ballard 3, SE SW 17-7n-7e, Brookhaven field, has been completed for an initial production of 737 barrels per day.

Alabama

Four tests are now planned or working in the Gilbertown field of Choctaw County. The Carter Oil Company's M. Adams 1, 4-10n-3w, is getting set for a producer after having tested 1300 feet of oil from the Eutaw at 3293-318 feet. Testing continued in an effort to eliminate salt water input. Carter's T. E. Long 1, SWc NW 5-10n-3w, was waiting on cable tool rig after reaching a total depth of 2332 feet.

Fayette County: Amerada Petroleum Corporation's D. H. Wright 1, wildcat in NW SW 8-15s-10w, is drilling below 1803 feet in sand.

Pike County: J. W. Murphy's Alex Parks 1, SW SE 9-9n-23e, wildcat, is working below 1023 feet.

Florida

S. W. Breeding's N. E. Coats 1, SEc NW 25-7n-15w, exploring a hitherto untested area in Holmes County, was preparing to run core tests after reaching 2962 feet. No shows have been reported.

Franklin County: Magnolia Petroleum Company's Florida State Block 5-B A-1, offshore test, continued with coring operations below 5376 feet. Cores at 5310-45 feet recovered sand and shale, while cores at 5345-61 feet developed shale and lime.

Putnam County: Sun Oil Company-Seaboard Oil Company's Q. I. Roberts 1-A, NW NW 19-9s-25e, wildcat, was drilling below 2057 feet. No shows have been reported.

Collier County: Humble Oil & Refining Company's Gulf Coast Realty 9, C SE¼ 24-48s-29e, Sunniland field, has run into trouble with salt water. After establishing production, well was put on the pump but developed 90 percent salt water.

• Michigan

Prospects Bright for Pool Opener in Crawford County

Pure's Crawford County test taps Richfield pay zones; Carter's Oceana County test fails to establish commercial pay below Traverse; Austin gas field area test has oil and gas in Traverse.

Crawford County: Prospects for a pool opener continued bright after deeper drilling on The Pure Oil Company's State-A 1, W½ SW NW 17-25n-4w, Beaver Creek township, opened additional pay zones in the Richfield. The well recovered an average of 25 barrels of oil per day on swab tests at 4229-302 feet. It probably will be carried deeper before completion.

Production compares with many wells in the East Norwich field, 6 miles southwest, closest commercial field. The pay zone also is comparable to that in East Norwich, marked by low porosity. Pure controls most of the acreage in the probable development area, worked out on a core drilling campaign more than a year ago.

Oceana County: The Carter Oil Company's third attempt to establish commercial production in the Stony Lake field below the Traverse pay beds, 1600-1700 feet, failed and Schiller 2, NE SE SW 10-13n-18w, will be plugged back from 2232 feet and recompleted in the Traverse. At 2232 feet both the Dundee and Monroe had been tested.

Mecosta County: The Ohio Oil Company's Thurkow 1, NW NW NE 19-14n-8w, wildcat 3 miles southeast of Austin shallow gas field, carried 1000 feet of oil and 800 feet of water with an estimated 1½ million cubic feet of gas in the Traverse lime section at 3103 feet. Drilling will be carried to Dundee and Traverse tested later.

• Illinois Basin

Illinois Has Five Strikes Four in Aux Vases Sand

Illinois gets 5 discoveries; four in Aux Vases sand; Hoosier pool opened.

Wayne County: Nation Oil Company's Banks 1, SE NE NE 9-1s-7e, a mile east of the West Geff pool, is a discovery after making 1400 feet of oil in a 15-minute drill-stem test from Aux Vases sand at 3108-28 feet.

Aurora Gasoline Company's Spicer 1, NW NW SW 24-1n-5e, a mile west of the West Johnsonville pool, has pipe set for a test of Aux Vases sand at 2957-73 feet. On 1-hour drill-stem test the well yielded 1920 feet of oil and 60 feet of oil-cut mud.

Gallatin County: Sohio Petroleum

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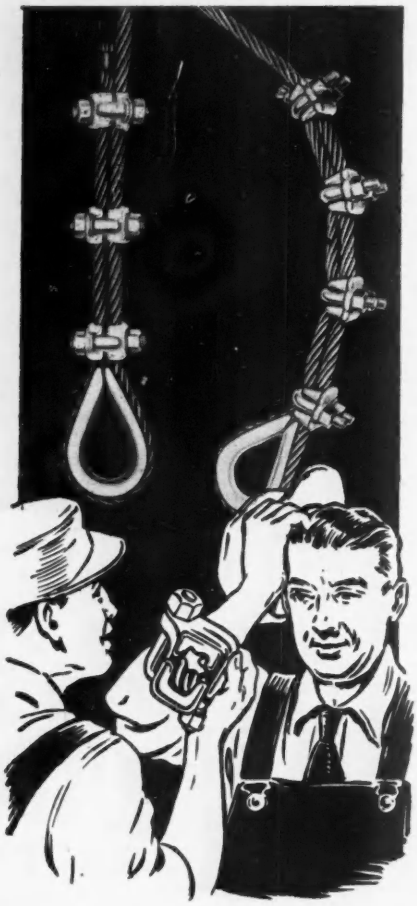

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Company's Lynch 1, NE NE NE 32-8s-10e, 2 miles southwest of the East Inman pool, was preparing to test Aux Vases sand at 2744-49 feet after setting pipe. On a drill-stem test, the well made gas in 1 hour and then showed 2270 feet of oil and 50 feet of oil-cut mud.

White County: Indiana Farm Bureau and B. M. Heath's Fuller 1, SW SE NW 21-5s-9e, 2 miles north of the Stokes pool, gassed in 7 minutes and made 2600 feet of oil on a 1-hour drill-stem test of Aux Vases at 3191-201 feet. Operator has casing set for production test.

Marion County: J. H. Gilliam's Ebe 1, NE NE NW 14-2n-4e, 4 miles southwest of the Xenia pool, swabbed 685 barrels of oil in 14 hours from St. Louis lime at 2874-78 feet after treatment with 1000 gallons of acid. The well is now pumping 20 barrels per hour.

White County: Haires and Wooter's Rawlinson 1, 29-3s-14w, a semi-wildcat, was reported making 30 barrels of oil in 17 hours from Biehl sand.

Indiana

Pike County: Ralph Halbert's Ayrshire-Collieries 1, SE SW 30-2s-7w, 3 miles southeast of the Columbia pool, was completed for 60 barrels of oil daily flowing from McClosky lime at 1402-09 feet. The area has been Coe pool.

• Ohio

Perry County Well Is Gasser; Sayre Pool Given Extension

Gas pay in the Clinton at Sego; Sayre has gas extension; large well completed at Frazier; Woodsfield pool active.

Perry County: John Morrow's west offset to the Crosson 1, Lizzie M. Henderson 2, NE SE 28 Madison, was drilled 16 feet in the sand where it had an open flow of 2 million cubic feet natural with a rock pressure of 1000 pounds. Top of the Clinton sand was reported at 3265 feet.

In the Sayre pool in Bearfield township, Ohio Fuel Gas Company moved ¼ mile north of the Anna Alton 1 and drilled in a good well on A. P. Alfman 1, SW SW 22. Clinton sand at 3798-838 feet, made 105,000 cubic feet natural, and after drilling the well to 7 feet in the Medina sand at 3911-18 feet, open flow increased to 950,000 cubic feet.

Muskingum County: The second largest gas well in the Frazier pool in northwestern Brush Creek was completed by Ohio Fuel Gas Company at Russell Longshore 1, NE SE 15. Clinton sand came in at 3717-50 feet and made 2,900,000 cubic feet of gas natural. The well is along the south side of the pool and will lead to further drilling to the south.

Monroe County: Nine strings of tools were running in the shallow pool in Center township southeast of Woodsfield. The best wells are completed in the Berea sand, although some are stopped in the Keener sand as small oil producers.

Carter Makes Gift

The Carter Oil Company has presented a gravimeter to the University of Tulsa. The instrument will be used in the college's geophysical research program. The instrument is one of the first prospecting commercial gravimeters designed, and weighs approximately 130 pounds.

• California

Water Problem Being Solved In Long Beach Discovery

Water problem being solved in Long Beach discovery with well flowing oil to tanks at 1120-barrel rate; Montalvo area of Ventura County becoming active as a result of Standard Oil Company of California discovery; former world's record well in Kern County being abandoned following unsuccessful test of showings; basement test scheduled for Kern River area.

Los Angeles County: Shell Oil Company has almost eliminated the water from its deep zone discovery, Dolley 2, in the Long Beach field, 29-4s-12w. The cut is down to 6 percent and appears to be decreasing. Oil was flowing to tanks at the rate of 1120 barrels a day through 14/64-inch choke. Gravity of the oil is 32.7. Gas production is 1,600,000 cubic feet. Pressure on tubing is 1980 pounds and on casing 2250 pounds. Oil is from perforated intervals at 10,056-192 feet and 10,247-317 feet.

The discovery is certain to result in a drilling campaign of substantial proportions on the southeast side of the field.

Shell also is believed to have made a discovery northwest of the Athens field in 12-3s-14w, although formation tests to date have not been too encouraging. With plug at 8731 feet and perforations at 8447 feet, recovery was 2000 feet of fresh water and oil and 3734 feet of oil and mud. Hole was replugged at 8745 feet and on a retest recovery was 2773 feet of fresh water and some oil.

Ventura County: Three companies have made locations in the Montalvo area recently brought to prominence by Standard of California's oil discovery. A Richfield Oil Corporation location was announced recently. Others to make locations for tests are The Texas Company, which will drill Fleischman 1 in 24-2n-23w, about 1 mile northwest of an offset to its discovery being drilled by Standard, and The Superior Oil Company, which has rig up for Saticoy 1 several miles northeast in 10-2n-22w.

Santa Barbara County: Barnsdall Oil Company is grading location for a shallow wildcat on the Rancho Canada de Salsipuedes. Site is about 3 miles from any previously drilled test. Honolulu Oil Corporation is jointly interested.

Kern County: Pacific Western Oil Corporation is abandoning National Royalties 1 in 5-26s-22e which held the world's depth record for a time last winter at 16,668 feet. Showings were tested between 11,700-900 feet, but recovery was only gas-cut mud and no oil. Work on the well started 18 months ago.

General Petroleum Corporation has completed Pacific 15 in the Midway-Sunset field, 32-12n-23w, as an offset to its recently completed Pacific 4, a shale producer in the Upper Obispo zone. On a formation test the well flowed at a 200-barrel rate of 28-gravity oil through 48/64-inch choke.

The British American Oil Producing Company has completed Tejon Ranch 71-5 in 5-10n-19w, pumping 190 barrels. Top of the oil sand is at 2628 feet. The well extends the Tejon field a short distance southeast.

Elmer C. von Glahn is grading location for a basement test in the Kern River area, 10-29s-28e.

Fresno County: Results of formation

tests at Seaboard Oil Company's Lillis 85-36 in the Panoche Creek area, 36-15s-12e, are being awaited with interest as this is an attempt to find oil in the Cretaceous, heretofore productive only in a minor way in California. Well is bottomed at 6059 feet. Non-commercial Cretaceous production was obtained several years ago about 6 miles north on the Cheney Ranch by Jergins Oil Company.

Solano County: Standard of California is preparing to drill Suisun Community 7, an outpost gas test on the Sacramento River. Location is a short distance from the company's Suisun gas field.

Washington

Standard of California's Alderwood 1 wildcat near the town of Everett is drilling below 8550 feet.

Research Agreements Are Extended by Penn Grade

The Pennsylvania Grade Crude Oil Association has extended to June 30, 1948, its cooperative research agreements with Battelle Memorial Institute of Columbus, Ohio, and the U. S. Bureau of Mines.

Representing the respective organizations in executing the separate agreements were D. T. Ring of Columbus, Ohio, Association president; B. D. Thomas, acting director of Battelle, and Dr. R. R. Sayers of Washington, D. C., director of the Bureau of Mines.

• Rocky Mountain Area

Fremont County, Wyoming, Has Good Tensleep Producer

Fremont County, Wyoming, given good Tensleep producer; Embar lime deep test located at Kirby Creek; Badger Creek structure test is below 9800 feet; Bears Den area, Montana, test completed; Rangely field, Colorado, has sixth dry hole.

Wyoming

Sinclair Wyoming Oil Company has completed Unit 5, SW NE SW 14-32n-95w, Fremont County, as the best Tensleep sand producer in the field and as a southeast extension. The well flowed 3151 barrels of 32-gravity oil in 24 hours through 1-inch choke. Tensleep was topped at 7677 feet and total depth is at 7996 feet. The well is ¾ mile southeast of the discovery, completed in 1944 for 1300 barrels of oil in 16 hours. Unit 4, 1½ miles northwest of No. 5, made 1700 barrels of oil daily for an initial. The Embar formation in this field has also shown for commercial production of both gas and distillate on tests of the wells.

Hot Springs County: Pacific Western Oil Corporation has made location for a fourth Embar lime deep well at Kirby Creek, after 2 good completions in this field. Pump was being installed on Kyne 2, SE NE SW 22-43n-92w, after the well swabbed at the rate of 500 barrels of oil daily. Embar was topped at 3361 feet in this well, with total depth 3460 feet. The new test will be Grace "A," CSL NW NW 21-43n-92w, on the west side of the field. Kirby Creek has produced for a number of years from shallow formations, but the first deep test was drilled by Pacific Western 3 years ago.

Sheridan County: Union Oil Company of California continued drilling at Unit 1, NW NW NE 23-57n-82w, on the Badger Creek structure northeast of Sheridan in the Powder River Basin. The well is now below 9800 feet, but no information has been released as to formation tops or shows encountered. The wells was originally scheduled as a Dakota test at around 8500 feet.

Uinta County: Mountain Fuel Supply Company has recovered the fish at Unit 3, NE SW NE 12-16n-113w, Church Buttes, and is now drilling in Dakota sand below 12,980 feet. The well has 7-inch casing set at 12,944 feet near the top of the Dakota and on 20-minute test of only 7 feet of sand below the casing made approximately 15 million cubic feet of gas daily. The well is the deepest drilled in the Rocky Mountains, and if productive will extend the producing area of the Church Buttes field five miles north of the discovery well. Unit 2, NE NE NE 22-17n-112w, continued testing at 12,692 feet, total depth, in the Dakota sand, but no data have been released. It is rumored that the well is capable of making in excess of 50 million cubic feet of gas daily. Mountain Fuel operates gas lines into the Salt Lake City, Utah, area, and is distributor in that region.

Montana

Liberty County: The Texas Company has finally completed its Sorrell 1, C NE NW 29-36n-6e, in the Bears Den area of the Sweetgrass Arch. This well was drilled last year as a test to Cambrian at 4915 feet, total depth, but was plugged

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ENGINEERS — Stanolind Oil and Gas Company, P. O. Box 591, Tulsa, Oklahoma, has opening for graduate chemical or mechanical engineer with two or more years experience in gasoline or recycling operations.

PETROLEUM ENGINEER
Experienced graduate Petroleum Engineer by large major oil company operating in Mid-Continent and Southwest area. Should be a specialist in well completion practices. Wanted to take charge of well completion work in major oil field. Good salary and house furnished. Please reply giving all particulars. Box 77W, c/o World Oil, Houston, Texas.

FOR SALE

■ FOR SALE—Model 55 Wichita Spudder less mast with PA-100 International engine in good condition. Located close to Pampa, Texas. Nabob Oil & Gas Company, Box 448, Amarillo, Texas.

FOR SALE—DRILLING EQUIPMENT
(2) Franks shot hole rigs and water trucks; first class shape; good trucks; now working on long term contract which goes with sale. Priced for quick sale.
(1) Franks Core Drill like new; used only three months; capacity 2000 feet; auxiliary Waukesha, mud pump, skid tank; 1600 feet of 3" drill rod.
Write Box 1301 or call 1533-W.
Midland, Texas

FOR SALE—700 acres mostly timbered land, fair improvements, six miles north Flynn oil wells, Leon Co. $15 acre. Also, 74-foot Lee C. Moore type Jack Knife derrick with four-foot sub structure. Also, Muskogee draw works roller bearing with Buda motor. One oil well mud pump with new Continental motor, $5,000. A. R. LEWIS, Corsicana, Texas.

SHOT HOLE DRILLS
Large and Small

All are truck mounted, rotary, chain pull down, smallest pump size 4x6. Some are in excellent condition; others need repair. Price F.O.B. Dallas, from $3,000 to $8,000 including truck. For details write 8800 Lemmon Avenue, Dallas, Texas.

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¼ Mile Deep Water
HOUSTON SHIP CHANNEL FRONTAGE
Perhaps the last available trackage through property
72 Acres — Now Vacant
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Purchased new from factory 2-23-46. Completely equipped for night and instrument operation. Executive class transportation, with three chairs and a couch. Two extra chairs that may be used instead of couch are included. Owned and operated by one company and flown by one pilot. Total time 594 hours, 181½ since overhaul and installation of hydromatic propellers. JUST HAD A 100 HOUR CHECK AND NEEDS NOTHING. Owner selling due to purchase of larger ship.

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HOUSTON, TEXAS
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Don Odom or Tommie Hines

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■ Production Engineer & Pipe Line Gauger. 2 years Engineering Course, College. 10 years practical experience; also, surveying, and some drafting. Veteran. Presently employed but desire to make change that offers a future. Address: Box 76W, c/o World Oil, Houston, Texas.

■ Situation Wanted—Oil Well Supply executive, with over 20 years experience in purchasing, inventory control, sales and sales promotion—good knowledge of drilling production, refining, and transportation materials. Address: Box 79W, c/o World Oil, Houston, Texas.

■ GEOLOGIST, twenty years experience in Gulf Coast exploration and development desires change. Surface, subsurface, and paleontological training and experience. Now employed by major company. Not available until after Jan. 1st. Minimum salary $650. Address: Box 78W, c/o World Oil, Houston, Texas.

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■ SEE A. L. BOWLES, ADA, OKLAHOMA, FOR SHALLOW DRILLING DEALS IN OKLAHOMA.

MAPS

PERMIAN BASIN EXECUTIVES MAP
1947 EDITION
Shows sections, surveys, wells, dry holes, and depths in blue; field names, formation depth, discovery year, number wells in red; larger lease blocks, expiration year in green. 1-in. —5 mi. 3 x 4 ft. Illustrated folder on request.
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DRILL PIPE WANTED. Submit us what you have—any size and in any condition. Will pay fair price for any lot, including pipe not fit to run, and even junk pipe. The Clay Brothers Drilling Company, Inc., 1804 Fair Building, Fort Worth 2, Texas.

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Wanted to buy small local manufacturing company which supplies equipment to petroleum industry. Desirable that company's products and manufacturing ability are already proved. Buyer not interested in inventions or new developments not in production. Write us giving type of product you manufacture, plant size and general location and approximate asking price. Box 74, c/o World Oil, Houston, Texas.

back to Ellis and casing set through this formation. Some shows of oil and gas were encountered in the top of the Madison below 2900 feet, but the zone did not prove commercial on drill-stem tests.

Phillips County: Texas' second wildcat at Bowdin at Unit 2, C NW NE 34-32n-34e, is now drilling below 4750 feet, probably in the Jefferson. Three forks was topped at 4250 feet. No shows of oil or gas have been released at the present depth. The company's first test of this high structure was abandoned at 5852 feet, total depth, in Cambrian early this year. No. 1 was 8 miles west of the second test.

Colorado

The sixth dry hole for the Rangely field has been completed by Continental Oil Company on the northwest side at Rosella Hall 1, C SE SE 5-2n-103w. The well was abandoned after recovering more than 1000 feet of clear salty water on drill-stem test of the upper section of the Weber. Weber was logged at 7453 feet, and the well was drilled to 7486 feet, total depth, before being abandoned. The failure of this test may disprove the opinion of some who believe that large surface faults parallel to the axis of the Rangely Anticline might seal lower beds sufficiently to allow a new pool on the northwest side of the field.

General Petroleum Corporation has completed the first of a series of three flank tests at Piceance Creek for an estimated 5 million cubic feet of gas daily.

The well is at No. 66-5-G, SE NW SE 5-2s-96w, on the north side of the field, 1 mile from the closest well. Production is from the Green River (Tertiary) with Wasatch topped at 3052 feet. Casing was run to 3100 feet, total depth, and is perforated. This well is the fourth gasser on the structure, and volumes vary from 5 to 10 million cubic feet in each well. The operator had hoped there might be an oil ring on the flank of the structure. A new location has been made by the company on the northeast side of the field, 2 miles from the recent completion.

INVESTMENTS

If you have a million dollars or more which is not helping to secure the future of these United States, and which is not earning a reasonable return, and if you still have faith in our country, and do not always believe that it is headed for the rocks, in short that you are not a prophet of "DOOM," get in touch with us at 731 Public Ledger Bldg., Philadelphia 6, Pa., we possibly could do business together.

READ

The Trading Post

FOR SALES AND SERVICES

EXPLORATORY FAILURES

ARKANSAS WILDCATS

Lafayette County: W. H. Oberthier's Mordica Brown Est. 1, c se se sw 26-15s-24w, 2½ mi s Midway fld, Massive Anhydrite 3554, abnd 7-14-47 at 3899.

Nevada County: Hunt Oil Co.-Arkansas Fuel Oil Co.'s Bodcaw Oil Co. 1, c sw nw 36-14s-23w, 6 mi ne Midway fld, Massive Anhydrite 2675, James 3241, Travis Peak 3602, Cotton Valley 4446, Buckner 5750, Smackover 5970, abnd 7-15-47 at 6077.

Union County: Arrow Drlg. Co.'s Union Saw Mill A-3, c nw nw se 3-18s-12w, 4 mi w New London fld, abnd 6-18-47 at 3323.

CALIFORNIA WILDCATS

Kern County: Independent Exploration Co.'s Anderson 2, 18-29s-21e, Cymric area, abnd 7-16-47 at 2000.

Westates Pet. Corp.'s Davidson 1, 36-27s-27e, Poso Creek area, abnd 7-11-47 at 3098.

Yolo County—Failures: Shell's Winters Unit 3-1, 18-8n-1e, Winters area, abnd 7-18-47 at 5195.

Standard's Guiguere 1, 7-11n-1w, Dunnigan Hills area, abnd 7-9-47 at 2750.

COLORADO WILDCATS

Huerfano County: Rainbow Drlg.'s Saliba 1, ce se se 11-28s-65w, Santa Clara, Greenhorn 132, comp as wtr well 7-16-47 at 225.

Ouray County: Hackathorn Drlg.'s Campbell 1, nw se sw 25-46n-8w, Ridgeway area, abnd at 797.

COLORADO OUTPOST

Rio Blanco County—NW Rangely: Continental's R. Hall 1, c se se 5-2n-103w, Weber 7453, abnd 7-18-47 at 7486.

ILLINOIS WILDCATS

Clark County: Frank Hessler's Cartright 1, se nw se 35-12n-14w, abnd 500.

Edwards County: Dean Smith's Smith 1, se se ne 25-1s-10e, abnd 3235.

Jasper County: A. J. Slagter, Jr.'s Dodd 1, se nw ne 18-6n-11e, abnd 2756.

Jefferson County: F. J. Fleming's Willoughby 1, nw nw ne 34-1s-1e, abnd 2447.

Marion County: Ohio Oil Co.'s Goostree 1, se sw nw 8-1n-4e, abnd 2859.

Saline County: George & Wrather et al's Crawford 1, ne nw se 34-7s-6e, abnd 3154.

Shelby County: C. A. Ray et al's Kneller 1, nw 4-11n-3e, abnd 1460.

Wabash County: Joe Reznik's Newkirk 1, se nw sw 28-1n-13w, abnd 2747.

White County: B. M. Heath's Spencer 1, ne ne se 19-5s-10e, abnd 3245.

NORTH LOUISIANA WILDCATS

De Soto Parish: Texas Co.'s Malcomb L. Crowland 1, 4-12n-14w, Grand Cane Prospect core test, abnd 7-8-47 at 1515.

Texas Co.'s Dr. M. H. Foster et al 1, 20-13n-14w, Grand Cane Prospect core test, abnd 7-17-47 at 1545.

Union Parish: F. B. King-H. C. McCalman's Mrs. E. L. Ramsey 1, c nw sw se 3-21n-1w, 3 mi s Ora fld, abnd 7-21-47 at 3251.

Rogers Lacy's J. D. Baughman 1, 36-22n-1w, south of Ora fld, abnd 7-19-47 at 2561.

SOUTH LOUISIANA WILDCAT

West Baton Rouge Parish: Sohio's Southern Ld. Products Co. 1, swc 3-7s-11e, 4 mi n Morley fld, abnd 7-15-47 at 9162.

MICHIGAN WILDCATS

Allegan County: Ford Oil Co.'s Cave 1, nw se se 3n-14w, abnd 7-15-47 at 1468.

Arenac County: Erwin Major's Dunec 1 se se se 32-19n-3e, Dundee 2990, abnd 7-18-47 at 3163.

Huron County: C. W. Teater's Knoblock 1, ne sw se 31-19n-13e, Traverse 1735, abnd 7-14-47 at 1761.

Isabella County: Merrill and Clayton's Matteson 1, sw sw se 12-15n-15w, Dundee 3774, abnd 7-15-47 at 3788.

Kent County: Phinney Brothers' Anderson 1 se nw se 16-8n-5w, Traverse 2379, abnd 7-14-47 at 2441.

Montcalm County: McClure Drlg. Co.'s Hansen 1, se se nw 9-11n-5w, Dundee 3442, abnd 7-16-47, at 3569.

Newaygo County: Merrill Drlg. Co.'s Longcore 1, se se sw 25-11n-12w, abnd 7-18-47 at 2957.

Osceola County: Brown and Putnam's McLaughlin 1, n½ se ne 34-18n-7w, abnd 7-15-47 at 5144.

Ottawa County: Ford and Boeve's Wiers 1, se ne nw 16-5n-13w, abnd 7-16-47 at 1690.

MISSISSIPPI WILDCATS

Attala County: Stanolind's C. E. Steed 1, se sw 4-13n-6e, Wilcox 410, Chalk 3244, Eutaw 3244, Tuscaloosa 3884, Massive sd 4469, abnd 7-15-47 at 7108.

Clay County: Atlantic's R. G. Dunning 1, swc 12-19n-16e, abnd 7-13-47 at 9243.

MONTANA WILDCAT

Yellowstone County: A. Koeber's Leach 1, ce se se 6-3s-25e, East Laurel, Dakota 949, abnd 7-5-47 at 1280.

NEBRASKA WILDCAT

Banner County: Banner O&P's Levercheck 1, se ne se 22-19n-57w, Dakota 6425, abnd 7-16-47 at 6788.

NEW MEXICO WILDCAT

Chaves County: Richfield Oil Corp.'s White 1, lse. 3, 660 nsl 3300 wel 6-12s-29e, elev 3710, Yates 620, Seven Rivers 710, red sand 1320, San Andres 1870, Glorietta 3105, Abo 5435, Hueco 6400, Pennsylvanian 6613, Missis. 7750, Devonian 8320, Silurian 8460, Ellenburger 8700, granite 9040, abnd 7-13-47 at 9058.

OHIO WILDCATS

Lawrence County: Commonwealth Gas Corp.'s Cambria Clay Products Co. 49, ne nw 23 Washington, Clinton 2814, Medina 2930, abnd 7-10-47 at 3093.

Logan County: Ohio Oil Co.'s John Harrod (Virgil John unit) 1, L-9930 McArthur, St. Peter 2027, Basement complex 3245, abnd 7-7-47 at 3361.

OKLAHOMA WILDCATS

Carter County: Continental's Milroy 1, se se sw 6-3s-1w, abnd 7177.

Cotton County: Bridwell Oil Co.'s Shaw 2, cnw sw 15-3s-11w, abnd 1691.

Bridwell's School Land 1, cnw ne 16-3s-11w, abnd 1726.

Garvin County: Kirckpatrick & Bale's Gammill 1, ne nw ne 18-4n-2e, abnd 3980.

Kiowa County: D. T. Potts' Bell 1, nw nw ne 22-6n-20w, abnd 686.

Pontotoc County: Gem Oil Co.'s Lucy 1, ne ne nw 5-5n-6e, abnd 2039.

WEST TEXAS WILDCATS

Andrews County: Jas. A. Edmiston Drlg. Co.-Joe Cannon's University-Skelly 1, c se nw sect 21, blk 1, elev 3131 anhydrite 1840, Grayburg 4540, San Andres 4850, abnd 7-10-47 at 5110.

Crane County: Texas Co.'s Alan Connell 1, c ne se PSL 9, blk B-22, elev 2829, San Andres 3615, Glorietta 4500, abnd 7-7-47 at 7637.

Dawson County: Ray A. Albaugh et al's Graves-American 1, c se se T&P Ry. 48, blk 34, T-4-N, elev 2821, anyhdrite 1410, Yates 2040, Grayburg 3250, San Andres 3750, Glorietta 4340, Clear Fork 4560, abnd 7-15-47 at 5703.

Gaines County: Honolulu Oil Corp.'s Kirschner 1, 440 out sec CCSD-RGNG 430, blk G, elev 3489, anhydrite 1920, Yates 3020, brown lime 4040, Grayburg 4280, San Andres 4540, abnd 7-13-47 at 7702.

Howard County: L. H. Wentz et al's O'Daniel 1, c sw ne T&P Ry. 3, blk 30, T-1-N, elev 2281, San Andres 2290, abnd 7-21-47 at 2314.

WEST TEXAS NEW PAY TEST

Gaines County—Jones Ranch Field: Amerada's Jones 2-A, c se ne PSL 3, blk A-6, elev 3697, Woodford shale 11,105, Devonian 11,163, Montoya 12,410, Simpson 12,675, Granite 12,900, td 12,924, pb completion in regular pay, flow 1053 bbls via ½-inch after acidizing Devonian perforations 11,276-332, 11,348-388, comp 7-8-47.

WEST CENTRAL TEXAS WILDCATS

Crockett County: Amerada's University 1-CTA, c se sw sect 23, blk 42, elev 2613, San Andres 1370, Wolfcamp 6130, black shale-Ellenburger contact 8102, Wilberns 9080, abnd 7-8-47 at 9104.

Ted Weiner et al's Vaughn-Richfield 1, c sw se GC&SF Ry. 86, blk OP, elev 2616, San Andres 1510, Wolfcamp 6410, Strawn 7240, Ellenburger 7540, abnd 7-2-47 at 7785.

Tom Green County: James Gouras et al's Elliott 1, 1000 nsl 1750 ewl S. P. Ry. 68, dist. 11, elev 1871, Cisco 2193, abnd 7-12-47 at 2306.

WEST CENTRAL TEXAS NEW PAY TEST

Coke County—Jameson Field: Sun's Allen Jameson 2, 3300 nsl 1980 ewl H&TC 253, blk 1-A, elev 2125, Glorietta 1100, Crinoidal 6360, Detrital 6993, Ellenburger 7083, abnd 7-21-47 at 7114.

NORTH TEXAS WILDCATS

Archer County: Fain & McGaha's Huff 2-A, 330 nsl 4470 ewl Michael Fanning sur, elev 1009, abnd 7-14-47 at 4350.

A. P. Kouri et al's Crawford 1, 850 snl 1200 wel sect 152, J. W. Harris sbdn, abnd 7-5-47 at 1387.

White & Duncan's Kinder 2, 830 nsl 530 wel sect 1111, blk 4, Clark & Plumb sur, elev 972, abnd 6-8-47 at 1265.

C. T. Robertson and Matheny Oil Co.'s Garvey 1, 467 snl 4200 ewl Sam H. Smith sur elev 1059, Bend 4568, abnd 7-12-47 at 4698.

Clay County: Timberlake & Kelleher's Dunn 1, 330 out nwc blk 125, M. Lassiter sur, abnd 7-17-47 at 2003.

Cooke County: Voth Bros. Drlg. Co.'s Pulte

EXPLORATORY FAILURES

1, 1590 nsl 1050 wel J. Shields sur, Ellenburger 2020, abnd 7-10-47 at 2052.

Montague County: L. S. Youngblood-R. L. Foree's Howard 1, 500 snl 1275 wel sect 1, Jack CSL, elev 881, Bend 6128, Barnett 6347, abnd 7-12-47 at 6358.

Young County: F. J. Wendel et al's Elmore 1, 750 snl 450 ewl sect 3404, TE&L Co. sur, abnd 7-5-47 at 660.

NORTH TEXAS NEW PAY TEST

Archer County: Alex Goldsmith et al's Kemp-Kempner 1, se se sw S. P. Ry. 2, A-115 (blk 63), within unclassified shallow pool, Strawn 3660, KMA 4021, Bend 4440, Ellenburger 4834, abnd 7-14-47 at 4858.

TEXAS PANHANDLE WILDCAT

Randall County: Big Bear Oil Co.'s Currie 1, c sw ne I&GN Ry. 57, blk 6, elev 3557, abnd 7-9-47 at 6149.

NORTH CENTRAL TEXAS WILDCATS

Jones County: Con-Tex Pet. Corp.-Mantex Oil Co.'s Manley 1, 467 out nec sect 73, F. W. Douglas sur, elev 1713, Dothan 1380, Saddle Creek 1720, base Palo Pinto 3350, Strawn line 3500, abnd 6-21-47 at 3719.

Onyx Oil Co.'s Hollis 1, sw sw nw T&P Ry. 25, blk 15, elev 1733, abnd 7-3-47 at 2570.

H. L. Hunt Oil Co.'s Daniell 1, 330 ft out nwc T&P Ry. 2, blk 16, elev 1752, abnd 7-1-47 at 2685.

Shackelford County: Bahan Bros. et al's Gray 2, 664 snl 500 ewl e½ sect 83, University Lands sur, abnd 7-1-47 at 982.

Ungren & Frazier's Baker 1, 990 snl 330 ewl N. M. Gladden sur, abnd 6-25-47 at 1860.

Callahan County: G. C. Tisdale et al's Brown 1, S.P. Ry. 1, abnd 7-13-47 at 1665.

Eastland County: Star Oil Co.-Lloyd Oil Co.'s Brown 1, 1400 snl 470 wel sect 3178, TE&L Co sur, abnd 7-12-47 at 4195.

Jones County: Geochemical Surveys' Rosenquist 1, nw ne se BBB&C Ry. 184, elev 1538, abnd 7-13-47 at 3414.

S. B. Roberts-French M. Robertson's Steele 1, 330 nsl, 1925 ewl, T&NO Ry. 4, blk 2, elev 1730, abnd 7-11-47 at 2480.

Shackelford County: W. J. Weaver-Owenwood Pool No. 3's Davis 1, 220 out swc w½ T&P Ry. 41, blk 13, abnd 7-7-47 at 1936.

Throckmorton County: Worsham and Oil Well Drlg Co.'s Dannenhold 1, 1005 wel 1155, nsl sect 3023, TE&L Co. sur, elev 1279, Bend 4268, Barnett 4812, Mississippi 4827, abnd 7-10-47 at 4848.

EAST CENTRAL TEXAS WILDCATS

Van Zandt County: Humble's McCord 1, 6300 wel 5300 nsl Leander Smith sur, elev 540, Pecan 2420, Woodbine 4300, Georgetown 5103, Paluxy 6195, Glen Rose 6503, massive anhydrite 7520-7670, Travis Peak 8346, abnd 7-16-47 at 8513.

Thurman Armstrong et al's Hale 1, 1530 snl 2400 wel J. Wortham sur, elev 267, abnd 7-14-47 at 1900.

NORTH EAST TEXAS WILDCATS

Angelina County: Traders Oil Co.'s H. D. Lagrone 1, 330 w of el 450 n of sl tr in A. Flores Lge, abnd 7-8-47 at 975.

Cherokee County: Delta Drlg. Co.-Al Brown's Bailey-Sun 1, 5000 nsl 330 fr m/s/el John H. Russell sur, elev 407, Midway 1870, Pecan 3320-3690, Austin 4140, Woodbine 4325, abnd 7-10-47 at 4392.

SOUTH CENTRAL TEXAS WILDCATS

Bexar County: J. E. Mowinckle's M. B. Barin 1, 467 fr ne&nwl 104.35-ac lse, Mariano Seguin Sur, Edwards lime 3385, abnd 7-14-47 at 3617.

Caldwell County: Wiegand Bros. Drlg. Co.'s O. O. Perry 1, 240 fr nl 300 fr sl 1800 fr el 77.3-ac tr, Wm. House Sur 43, Tenney Creek area, abnd 7-10-47 at 2971.

Guadalupe County: Cecil Hagen et al's H. Calvert 1, 5600 fr wl 3050 fr sl John Ussery Sur, Austin Ch 1443, Edwards li 1844, Glenrose 2308, abnd 7-18-47 at 4390.

Travis County: E. R. Marts' Geo. Artz 1, 800 fr nwl 12,000 fr nel Webber Sur 11, 40-ac lse, abnd 6-25-47 at 480.

SOUTHWEST TEXAS-LOWER COAST WILDCATS

San Patricio County: Nelson Bunker Hung Tr. Est.'s Turner Bros. 1, 795 fr sl 660 fr wl lot 36 and Presidio Irr. Co. Sur, abnd 7-14-47 at 6510.

Starr County: Sun's E. Izaguirre, Jr. 1, 2660 e of wl La Sal Colorada Gr at ra, 5 mi w nw of N. Sun fld, abnd 7-10-47 at 5005.

Webb County: Houser & Campbell-W. C. McBride's Garcia Est. 1, 330 fr n&wl blk 16, Los Ojuelos Gr, abnd 7-7-47 at 2103.

MIDDLE TEXAS COAST WILDCATS

Bee County: Dirks Bros.' T. W. Caswell 1, 1237 fr sel 214 fr nel 500-ac lse, 2714 fr ne&nwl Thos. Mancha sur, 2 mi nw Caesar fld, abnd 7-5-47 at 2773.

Tide Water's W. R. Boothe 1, 2310 fr ne&sel 637.17-ac lse, Asa Walker Sur, 1 mi sw Dirks fld, abnd 7-17-47 at 7650.

UPPER TEXAS COAST WILDCATS

Liberty County: Deep Rock Oil Corp.'s Andrew McCloskey 1, 659.7 fr el 559 fr sl 160-ac tr, ne H&TC sur sect 127, 1 mi off se flk prod at Dayton Dome, abnd 7-7-47 at 10,020.

General Crude's Phoenix Dev. Co. 3, 2890 fr el 1550 fr sly/nl 584-ac lse, Jesse Devore Lge, abnd 7-16-47 at 7612.

Polk County: Gem Oil Co.'s Kavanaugh & Collins 1-A, 660 fr nwl 330 fr swl 479.7-ac lse, A. Viesca Lge, ¾ mi n of e side Livingston ⅝d, abnd at 7-7-47 at 7269.

San Jacinto County: Butcher-Arthur's Foster Lbr. Co. 2-C, 3200 fr swl 665 fr sel W. M. White sur, 8500 e ne of Cold Spring Cockfield prod, abnd 7-8-47 at 5671.

Union Laws Briefed

Rep. Marshall O. Bell, an attorney of San Antonio, has prepared a brief and analysis of the nine laws passed by the recent Texas Legislature regulating labor unions. This brief is written for use by a layman as well as a lawyer. Anyone interested in securing a copy can write Marshall O. Bell, 613 Frost Bank Building, San Antonio.

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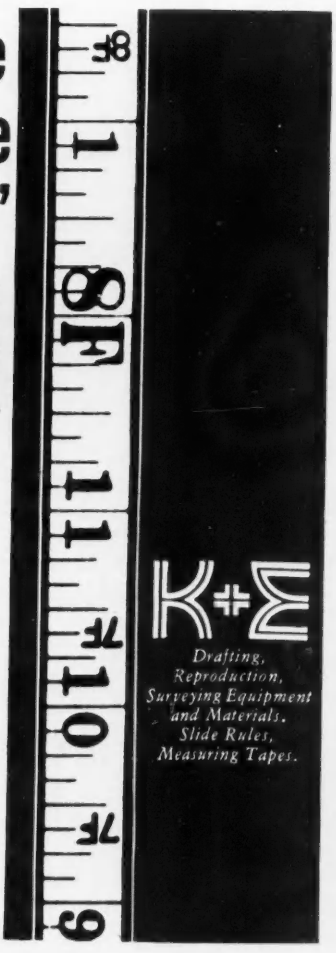

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D. J. Smith has been elected president of Pan American Petroleum and Transport Company. **C. H. Wagner** was named head of the American Oil Company, Pan American's marketing affiliate. The new executives were named to succeed the late **E. G. McKeever,** who had been president of both companies. Smith was formerly executive vice president of Pan American, and Wagner was vice president of and general manager of American Oil Company.

»

Byron Rife has been named a vice president of Holly Development Company, Los Angeles. His offices will be in the Milam Building, San Antonio.

»

Grover W. Ferguson has joined The Texas Company's Beacon, N. Y., laboratories as a mechanical engineer in the products-application department. He is a 1947 graduate of Texas A. & M. College.

»

E. N. Durham, Shell Oil Company exploitation engineer, has been transferred from the North Texas Division to Centralia, Ill.

»

Charles F. Frey, Fort Worth division warehouseman for The Texas Company, and an employee for 35 years, has retired, and is succeeded by **L. T. Barnett,** formerly of Houston.

»

R. N. Giles, superintendent of technical service in the Whiting, Ind., laboratories of Standard Oil Company (Indiana), has been promoted to director of technical service, with headquarters in the research department at the general office in Chicago. **C. R. Harte,** assistant superintendent of technical service at Whiting, will succeed Giles. **W. F. Meehan,** a group leader, will fill the post vacated by Harte. Other promotions: **E. B. Tucker,** appointed as section leader at Whiting; **H. M. Grubb** and **W. L. Rittschof,** group leaders in the same section; **F. W. Porsche,** foreman of the gas analysis laboratories, succeeding Rittschof; **G. W. Flint,** section leader; **C. E. Adams,** section leader; **E. J. Campau, A. W. Lindert, D. E. Burney, Philip Hill, W. R. Hertwig,** and **Moses Gordon,** group leaders, and **Michael Dufinecz,** patent advisor assisting **J. C. Stauffer.**

»

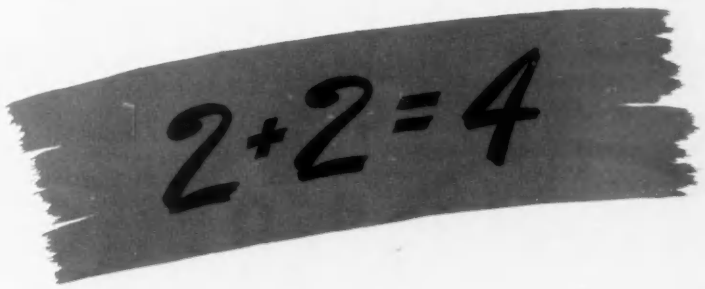
John L. Bible has resigned as executive vice president of North American Geophysical Company and has established offices as a consulting geophysicist specializing in gravity and magnetic supervision and interpretation and residual gravity computations and studies. He has joined with **U. E. Neese** and **Fred A. Lauterbach** in organizing Tidelands Exploration Company for performing gravity surveys on land and water. Neese was formerly in the geophysical and geological departments of Stanolind Oil & Gas Company and recently with North American Geophysical. Lauterbach was formerly in the geophysical department of Stanolind and during the past year supervised the gravity operations in the Gulf of Mexico for Robert H. Ray Company. The new offices are at 2626 Westheimer, Houston 6.

Edward R. Honeyman, an employe since 1905, has been promoted to assistant manager of the Employe Relations Department of Standard Oil Company of New Jersey. His office will be at 26 Broadway. Starting as an office boy in the foreign shipping department, Honeyman subsequently was transferred to the accounting department. In 1928, he was named personnel assistant to the sales manager of the New Jersey Division. In 1935 he was transferred back to 26 Broadway from New Jersey and assigned to the industrial relations department.

E. G. Cole, geologist for Sinclair Prairie Oil Company, has been transferred from New York City headquarters to Fort Worth to become West Texas-New Mexico division geologist. He succeeds **H. Smith Clark,** who resigned recently to operate as a consultant in Fort Worth.

»

George L. Christie, who has been representing Socony-Vacuum Oil Company in Peru for three years, has returned to the U. S. **Andrew K. McGill,** chief geologist of the Peruvian organization, is serving as manager pro tem.



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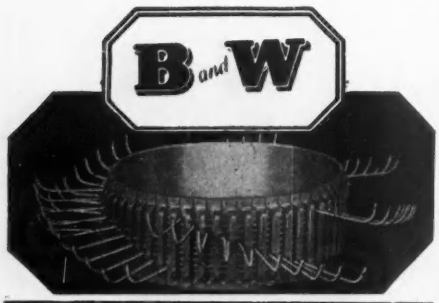

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MEN IN THE INDUSTRY NEWS

Kirby Walker, former chief engineer for American Gas Machine Company, has been named chief engineer for Consolidated Industries of Lafayette, Ind.

»

Ray Inglis, former district engineer for Cities Service Oil Company at Great Bend Kansas, has been transferred to Chase, succeeding **Bill Devaney,** who has been moved to the Hugoton field. Inglis was succeeded by **E. W. Peterman.**

»

Dr. Edward B. Peck, special assistant to **George M. Maverick,** personnel director for Standard Oil Development Company, has been granted an honorary doctor of science degree from Clark University.

»

R. L. Tollett was elected president of Cosden Petroleum Corporation at a meeting of the board of directors at Big Spring, Texas. Other officers elected are **Marvin M. Miller,** vice president; **A. V. Karcher,** secretary and treasurer; **V. A. Whittington,** assistant secretary and assistant treasurer; and **Nelson Phillips, Jr.,** general counsel and assistant secretary.

»

Ira A. Brinkerhoff has joined Cummins, Berger & Pishny, engineers and geologists, Houston, as a geologist in charge of the new Houston office, and **V. Robert Kerr,** seismologist, is in charge of seismic interpretation in the Fort Worth office.

»

J. S. Turner, formerly retail manager at Little Rock, has been appointed assistant manager at the Wichita, Kansas, motor truck branch for International Harvester Company.

»

Dr. M. L. Crossley, director of research for American Cyanamid Company, received the honorary degree of Doctor of Science from Wesleyan University, Middletown, Conn. Dr. Crossley, who recently was awarded the 1947 gold medal of the American Institute of Chemists for "noteworthy and outstanding service to the science of chemistry or the profession of chemist," was one of eight persons who received honorary degrees at the Wesleyan commencement.

»

Percy E. Griffin has been named a field representative of Caterpillar Tractor Company, Peoria, Ill. Griffin will serve the distributors and manufacturer-customers in Colorado, Wyoming, and Montana as well as those of Saskatchewan and Alberta, Canada. He will make his residence in Golden, Colo.

»

Robert D. Fagan has been appointed sales representative for International Cementers, Inc. in the Long Beach California district to replace **M. W. (Monk) Cook,** who has resigned to do selling work in the Near East. Fagan was with Pacific Cementing from 1937 until it was made International Cementers in 1940 as cementer district manager and special representative.

H. R. McCombie, chief chemist for Shell Chemical Corporation at Torrance, Calif., has been appointed senior technologist at San Francisco.

»

E. W. Bergquist, former engineer in the Holly Ridge-Lake St. John area of Louisiana and Mississippi for Interstate Oil Pipe Line Company, has succeeded **E. C. Mishou** as safety engineer in the employe relations department at Tulsa. Mishou was transferred to the southern division in Shreveport as assistant chief engineer.

»

Richard A. Nixon, geophysical computer, and **Thomas W. Blackstone,** geologist, have joined Cities Service Oil Company in Houston.

Deaths

Arthur LaMotte, 76, former manager of the technical service section of Du Pont Company's explosive department, died July 17 at Oakland, Calif. He started with Du Pont in 1896 and became manager of the technical service section, a position he held until his retirement in 1941.

»

Kenneth D. Wood, 42, Tulsa, accounting clerk for The Carter Oil Company, and his two sons, **Phillip Lester,** 13, and **Donald Ralph,** 10, were drowned near Middletown, Penn., July 18 while on vacation. **Harold Mansberger,** 34, who attempted to rescue the three when their boat was swept over a dam, was also drowned. Wood had been with Carter 17 years, and was a native of Okmulgee, Okla. He was employed by the old Slick-Urschel Oil Company from 1930 until the firm was absorbed by Carter.

»

Daniel W. Armstrong, vice president and director of Eastern States Petroleum Corporation, died July 16 in New York City. He had been associated with Eastern States since its organization in 1932.

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Four Executive Assignments Made By Cummins Engine Company

Four personnel assignments within the Distribution Division of the Cummins Engine Company, Inc., Columbus, Ind., have been announced by L. W. Beck, general sales manager.

S. J. Coffey, former manager of Cummins Diesel Sales Corporation of Illinois, has been appointed manager of regions. He will work directly under the general sales manager in supervising the activities of the Cummins regional offices.

Byron A. Duling has been appointed manager of engine distribution with headquarters at Columbus. In this capacity, he will have charge of all engine distribution to Cummins dealers and to manufacturers who use Cummins diesels.

Raymond Boll has been appointed assistant manager of the Cleveland region, with headquarters at 805 Fidelity Building, Cleveland.

W. C. Phillips has been named assistant manager of the Southeastern region.

Axelson Completes Organization In Venezuela and Colombia

J. C. Axelson, president and general manager of the Axelson Manufacturing Company, announced the completion of negotiations for an extensive sales and service organization in Venezuela and Colombia.

J. C. Axelson

Directly representing Axelson in sales and service, M. Ray Conger will be located at Caracas. Conger has been with Axelson Pump sales and service division since 1929.

Axelson is represented by C. C. McDormond at Maracaibo, aided by John McNeill.

C. A. Industries, Waldrip y Campbell, recently formed by William S. Waldrip of Waldrip Engineering Company, Los Angeles, and W. J. Campbell, president of Petroleum Machinery Corporation, New York City, have established headquarters at Caracas.

The Waldrip Campbell organization with headquarters in Barcelona, Venezuela, will stock, sell and service the complete line of Axelson pumps and sucker rods in Venezuela and Colombia. They will distribute and service Axelson Heavy Duty Engine Lathes and Axelson Hollow Spindle Oil Country Lathes.

R. J. Eiche Named Representative For Lewis and Page Companies

R. J. (Bob) Eiche, of Los Angeles and New York, has been appointed export representative for Lewis Manufacturing Company of Oklahoma City and Page Oil Tools, Inc., of Long Beach, Calif.

Export of Lewis specialty oil field products was formerly handled by Eiche through Well Equipment Manufacturing Corporation.

Page manufactures a line of production tools including tubing anchors, tubing drains, oil and gas separators, bottom hole packers, and down-squeeze packers.

In addition to Lewis and Page representation, Eiche also handles for export the equipment manufactured by The Cavins Company, Corex Engineering Company, Eason & Therolf Tool Company, Eastman Oil Well Survey Company, Hamer Oil Tool Company, Hopper Machine Works, Inc., Pacific Perforating Company, and Web Wilson Oil Tools, Inc.

Mid-Continent Opens Store

Approximately 500 guests attended the formal opening of Mid-Continent Supply Company's new store at Great Bend, Kansas. Personnel at the store includes V. H. Haston, store manager; P. K. Confer, field salesman; A. R. Tune and E. G. Mog. Among company representatives who officiated at the store's opening were S. R. Clinkscales, division manager at Tulsa, and Nick Carter, district manager at Wichita, Kansas.

Dallas Office Opened

Electric Machinery Manufacturing Company, Minneapolis, has established a sales office in Dallas to handle its line of large motor, generators, and control equipment. H. L. Renking, formerly manager of the E-M office at Pittsburgh, will be in charge.

Explosives Department Executive Is Appointed by Du Pont Company

Harry W. Hobson, who started with the Du Pont Company as a stenographer 44 years ago and rose to be assistant director of sales in the company's explosives department, will retire August 1.

George H. Loving will assume Hobson's duties as assistant director of sales, and J. A. Dallas, assistant manager of the Huntington, W. Va., sales office, will succeed Loving as assistant director in charge of chemical and miscellaneous sales.

Offices Moved

National Geophysical Company, Inc., has moved its general office from the Tower Petroleum Building to 8800 Lemmon Avenue, Dallas.

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•

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Ohio Oil's History

A history of The Ohio Oil Company's 60 years of operations in the petroleum industry has been issued, President O. D. Donnell announced. The 48-page book, containing text and pictures, charts, and other illustrations, was prepared by members of the company's staff, and will be distributed to the company's stockholders and employes and others interested in a typical American business enterprise.

The book, entitled "Sixty Years of Progress," devotes substantial space to the origin and the background leading to the formation of The Ohio Oil Company on August 1, 1887. It traces the growth of the company since its inception as a local oil producing enterprise in the Trenton limestone field in northwestern Ohio to its present position as a nationwide oil company playing an important part in all phases of the petroleum industry—production, transportation, refining and marketing.

Short accounts of the major economic and technical factors which have influenced not only the company but the petroleum industry and the nation are woven into the history. Although the book is essentially general in character, enough detail is included to permit an intelligent understanding of the various changes in corporate structure which the company has undergone during its evolution.

The principal personalities concerned are brought into the story but emphasis is placed more on the events in which they participated rather than on their character or individual accomplishments.

Donnell stated, in announcing the issuance of the history, "The purpose of this book is two-fold; to record The Ohio Oil Company's progress and to report to the public on the position of the company in the community and industry."

Interstate Trucking

The National Council of Private Motor Truck Owners, with headquarters in Washington, D. C., has announced publication of a revised and enlarged edition of its manual covering all ICC regulations applicable to the interstate operation of private motor trucks. Prominently featured is a new section devoted to "ICC Regulations for Transportation of Explosives and Other Dangerous Articles," including specifications for shipping containers, with historical data, interpretation and comment.

The Manual is designed to keep private motor truck owners informed concerning their obligations and liabilities under the Interstate Commerce Act as administered by the Interstate Commerce Commission.

The Manual (105 pages, loose-leaf) has been printed and prepared for insertion in a standard 8½ x 11-inch three-ring binder for desk use. It is kept up-to-date by constant revision of its pages as changes occur as the result of legislation, court decisions or modifications in the ICC regulations.

The Manual is being offered to all private truck owners and other interested parties at a subscription price of $7.50 per copy. This includes the complete Manual with all supplementary revisions thereto for a one-year period. National Council of Private Motor Truck Owners, Inc., National Press Building, Washington 4.

Men, Oil and War

"Men, Oil and War," a 360-page book telling of the work Midwest oil men did to help win the war, is in circulation.

The book originated with a request from the government for a report which might serve as a guide in any future emergency and cut short the time needed to organize the production and supplying of oil products. The writing task was turned over to an experienced author, D. Thomas Curtin. Out of the assignment has emerged a graphic description of the performance by the oil fraternity in 15 midwestern states in furnishing petroleum products to the armed forces and keeping the essential civilian needs supplied.

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The oilfields are a harsh proving ground for any equipment used in drilling... That is why Regan Forge & Engineering Company leans over backward to put the best engineering, materials and workmanship into its time-tested line. Operators who specify *Regan equipment* take the measure of wear and tear and beat them to the punch every time.

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SQUEAKS *from the* BULL WHEEL

At Last

The elderly preacher and his wife had as their pet a lone parrot. This parrot, evidently affected by long years at the religious residence, spent its days in constant prayer. It prayed incessantly from morning until night.

In contrast, the next-door neighbor had a parrot who was an incessant curser. This distressed the neighbor greatly to have a cursing parrot right next door to the parsonage. One day, after many discussions about how to stop the parrot's cursing, the neighbor and the parson's wife decided to place the two parrots in one cage in the hope that the praying parrot might reform the cursing parrot.

The two parrots sat on the perch for some time, looking each other over, neither uttering a sound.

Finally the cursing parrot broke the silence.

"How would you like to have some loving?"

The praying parrot replied: "What the hell do you think I've been praying for?"

The Woman's View

"I see by the paper that a woman in Omaha has just cremated her fourth husband."

"Isn't that always the way? Some of us can't get a man and others have husbands to burn."

She's Practiced Up

Little Johnnie was asked by his father what he'd like for Christmas. Without hesitation, Johnnie said he'd like a baby sister. Christmas came and Johnnie had a baby sister. His father asked him what he'd like for next Christmas. Deep in thought for a minute or so, Johnnie said: "Dad, I'd like to have a Shetland pony—if it won't be too hard on mother."

Hints for Householders

Little Susie was a confirmed thumb-sucker. Her mother had tried in vain to break her of this habit. Finally, in exasperation, she said: "Susie, if you don't stop sucking your thumb you'll swell up and burst." Needless to say the idea of such a sad ending made a profound impression on Susie. A short time afterward the Red Cross ladies held their meeting at Susie's home. Included in their number was a young matron about to become a mother.

With her mother's prediction fresh in her mind, Susie, with her hands tied behind her back, stood gazing at this lady until, finally unable to contain herself any longer, she blurted out so all could hear: "I know what you've been doing."

Ditto for Householders

A housewife picked out six apples and handed them to the grocery clerk.

"That'll be 65 cents."

She gasped at the price, but fished out a dollar, handed it over, and started to walk out.

"Wait, lady. You forgot your change."

"That's all right," she said sweetly. "I stepped on a grape on the way in. That makes us even."

Mistake

He: There's a certain reason why I love you.

She: My goodness!

He: Don't be ridiculous.

Slips That Pass

Newspaper ad: "The ladies of the Biscoe Methodist Church have discarded clothes of all kinds. Call at 44 North Main Street and inspect them."

Better Vision

Him: "You look shorter in a bathing suit."

Her: "Yeah, but I notice it makes you look longer."

It's Doubtful

A newly inducted parachutist received terse orders from his commanding officer before his first jump.

"Remember," he was told, "pull the first rip-cord after you count to ten. If the 'chute doesn't open, pull the second cord. When you land a jeep will be waiting to bring you back to camp. That is all."

The soldier jumped. He counted to ten very slowly and pulled the cord. Nothing happened. He pulled the second cord. Nothing happened.

"Jehosephat!" he muttered. "I bet the jeep won't be there either."

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REDUCE TOOL JOINT WEAR

Used in the bottom of the mouse-hole, a "Joint Aid" absorbs most of the weight of the Kelly when it is set down on the single in the mouse-hole. Kelly and single are kept in alignment while connection is being made . . . galled threads are eliminated . . . connections are faster and easier . . . you're back on bottom *quicker* with a "Joint Aid" in the mouse-hole.

Inquire about them without delay . . . they're made for all popular sizes of pipe and tubing, for any size mouse-hole. Cost? . . . so low that it will be offset by the prevention of just one galled tool joint.

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Here's a compact Sucker Rod Wiper designed as Well Pullers wanted it. Short overall height, 4", just right height for wrenching rods. Weight complete, only 36#. Easy to handle, comes mounted on pony rod ready to be used, if so ordered. Tough, natural rubber wiping webs squeegee rod, box and square free of oil. No oil leaves hole or flips on crew . . . Rubbers stand enough pressure to take oil to tank or sump if well flows. Wipes any size rod, 5/8" to 1¼".

The Wiper Housing contains two rubber wiping elements. It is furnished complete to make up on all standard pumping tees. The Plain Cap type is shown above and the Table Plate Head model, below:

The cut away drawing shows sturdy construction of both types. The handy Table Plate Head holds rod tools and elevators.

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DELTA No. 1—1 swivel, 5/16 or 3/8" chain
DIXIE No. 1—2 swivels, 7/16 or 1/2" chain
LONE STAR 1—2 swivels, 7/16, 1/2 or 5/8" chain
LONE STAR 2—2 swivels, 7/16, 1/2 or 5/8" chain

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Advertisers' Index

EDITORIAL INDEX, PAGE 45

*Allied Chemical & Dye Corp 38
American Exploration Co. 15
*American Iron & Machine Works Co. 127
*American Meter Co. 118
American Steel & Wire Co. 111
*Axelson Manufacturing Co. 6

*B & W, Inc. 132
*Baker Oil Tools, Inc. ..... 1 and 100
*Baldwin-Duckworth Division Chain Belt Co. 67
Wm. M. Barret, Inc. 136
*The Barrett Division Allied Chemical & Dye Corp. 38
Bates and Glenn 136
*Bethlehem Steel Co. 37
*Black, Sivalls & Bryson, Inc. 11
*The Brewster Co. 31
*The Buda Co. 99
*Byron Jackson Co. 92

Cable & Stine 132
*Cameron Iron Works, Inc. 87
*Cardwell Manufacturing Co. 84-85
*Chain Belt Co. 67
Dan L. Clark Drilling Co. 133
Columbia Steel Co. 111
The Continental Supply Co. 96-97
*The Cooper-Bessemer Corp. 19
Crowell & Steele, Inc. 136
*Cummins Engine Co. 14

*Detroit Diesel Engine Division General Motors Corp. 40
*Dresser Industries, Inc. 33
*E. I. du Pont de Nemours & Co. 24
*Durbin-Durco 136

*Emerol Manufacturing Co. 130
Empire Trust Co. 116
*Emsco Derrick & Equipment Co. ..... Insert Opp. 36

*Fairbanks, Morse & Co. 9
The First National Bank & Trust Co. 2
First National Bank in Dallas 113
First National Bank in Houston 20
The Edwin H. Fitler Co. 100
Ft. Worth Laboratories 136

*Gardner-Denver Co. 91
*Garrett Oil Tools 34-35
The Gates Rubber Co. 25
General American Transportation Corp. 48
General Electric Co. 83
General Geophysical Co. 74
*General Motors Corp. 40
*H. P. Gott Manufacturing Co. 108
*Gray Tool Co. 41
*The Guiberson Corp. 80
Gulf Engineering Co. 132

*Harrisburg Steel Corp. 124
Hewitt Rubber of Buffalo Division of Hewitt-Robins, Inc. 32
Houston Laboratories 136
J. M. Huber Corp. 107
Hudson Engineering Corp. ..... Insert Opp. 37
*Hughes Tool Co. ..... I Cover

Independent Exploration Co. 23
*International Derrick & Equipment Co. 22
*International Harvester Co. 26

J. P. Machine & Tool Co. 131
W. P. Jenny 136
*Jensen Brothers Manufacturing Co. 125
*Johns-Manville 112
Jones & Laughlin Steel Corp. 46

Keuffel & Esser Co. 130

*L & H Machine Works 119
*Lane-Wells Company ..... III Cover
*The Thomas Laughlin Co. 126
*The Layne and Bowler Co. 18
*LeRoi Co. 123

Mack Trucks, Inc. 30
*Magnet Cove Barium Corp. 7
*Manhattan Rubber Division Raybestos-Manhattan, Inc. 27
*McEvoy Co. ..... Insert 88-89
*Mission Manufacturing Co. ..... Insert 72-73
*Lee C. Moore Corp. 16-17
Murphy Diesel Co. 71
Murray Rubber Co. 95

*Oil Well Supply Co. ..... 42-43 and 103
*Owen Tool Co. 135

*Pacific Pumps, Inc. 33
*Patterson-Ballagh Division Byron Jackson Co. ..... 68 and 135
Pelican Well Tool & Supply Co. 122
*Penberthy Injector Co. 98

*Raybestos-Manhattan, Inc. Manhattan Rubber Division 27
*Reed Roller Bit Co. 114-115
*Regan Forge & Engineering Co. 134
Republic Steel Corp. 28-29
The Richards Co. 136
*The Ridge Tool Co. ..... 113 and 117
Robins Conveyors Incorporated Division of Hewitt-Robins, Inc. 32
*John A. Roebling's Sons Co. 12-13

• The asterisk indicates that detailed information on products and services of the firm will be found in current 15th (1946-47) edition of The Composite Catalog of Oil Field and Pipe Line Equipment.

Seismograph Service Corp. 15
Sheffield Steel Corp. 121
*Southern Mill & Manufacturing Co. 10
*Spang-Chalfant Division The National Supply Co. 4-5
*Sperry-Sun Well Surveying Co. 8
*Standco Brake Lining Co. 136
*Templeton, Kenly & Co. 102
*The Thermoid Co. 39
*Thompson Tool Co. 120
*Thornhill-Craver Co. 76
Trading Post Section 128
*Tretolite Co. 104
United States Steel Corp. ..... II Cover, 42-43, 103 and 111
United States Steel Export Co. 111
U. S. Treasury 41
*Universal Atlas Cement Co. ..... II Cover

*Visco Products Co. 21

*Waukesha Motor Co. 36
*Wilson Manufacturing Co. 3
*Wilson Supply Co. 101
Wood Conversion Co. 117
Wyatt Metal & Boiler Works ..... IV Cover

*Young Engine Corp. 102
The Youngstown Sheet & Tube Co. 44

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